

MITSUBISHI

Mitsubishi Programmable Controller

Transition from MELSEC-I/OLINK to CC-Link/LT Handbook



● SAFETY PRECAUTIONS ●

(Always read these instructions before using this equipment.)

Before using this product, please read this handbook and the relevant manuals introduced in this handbook carefully and pay full attention to safety to handle the product correctly.

In this manual, the safety instructions are ranked as "DANGER" and "CAUTION".



Indicates that incorrect handling may cause hazardous conditions, resulting in death or severe injury.



Indicates that incorrect handling may cause hazardous conditions, resulting in medium or slight personal injury or physical damage.

Note that the  CAUTION level may lead to a serious consequence according to the circumstances. Always follow the instructions of both levels because they are important to personal safety.

Please save this handbook to make it accessible when required and always forward it to the end user.

[Design Precautions]

DANGER

- Create a safety circuit outside the programmable controller to ensure the entire system safety even if an external power failure or a programmable controller failure occurs. Otherwise, trouble could result from erroneous output or erroneous operation.
 - (1) Outside the programmable controller, construct mechanical damage preventing interlock circuits such as emergency stop, protective circuits, positioning upper and lower limits switches and interlocking forward/reverse operations.
 - (2) When the programmable controller detects the following problems, it will stop calculation and turn off all output in the case of (a).
In the case of (b), it will hold or turn off all output according to the parameter setting.
Note that the AnS series module will turn off the output in either of cases (a) and (b).

	Q series module	A series module
(a) The power supply module has over current protection equipment and over voltage protection equipment.	Output OFF	Output OFF
(b) The CPU module self-diagnosis functions, such as the watchdog timer error, detect problems.	Hold or turn off all output according to the parameter setting.	Output OFF

In addition, all output will be turned on when there are problems that the programmable controller CPU cannot detect, such as in the I/O controller. Build a fail safe circuit exterior to the programmable controller that will make sure the equipment operates safely at such times. Refer to "LOADING AND INSTALLATION" in QCPU User's Manual (Hardware Design, Maintenance and Inspection) for example fail safe circuits.

- (3) Output could be left on or off when there is trouble in the outputs module relay or transistor. So build an external monitoring circuit that will monitor any single outputs that could cause serious trouble.

[Design Precautions]



DANGER

- When overcurrent which exceeds the rating or caused by short-circuited load flows in the output module for a long time, it may cause smoke or fire. To prevent this, configure an external safety circuit, such as fuse.
- Build a circuit that turns on the external supply power when the programmable controller power is turned on.
If the external supply power is turned on first, it could result in erroneous output or erroneous operation.
- When there are communication problems with the data link, refer to the corresponding data link manual for the operating status of each station.
Not doing so could result in erroneous output or erroneous operation.
- When connecting a peripheral device to the CPU module or connecting a personal computer or the like to the intelligent function module / special function module to exercise control (data change) on the running programmable controller, configure up an interlock circuit in the sequence program to ensure that the whole system will always operate safely.
Also before exercising other control (program change, operating status change (status control)) on the running programmable controller, read the manual carefully and fully confirm safety.
Especially for the above control on the remote programmable controller from an external device, an immediate action may not be taken for programmable controller trouble due to a data communication fault.
In addition to configuring up the interlock circuit in the sequence program, corrective and other actions to be taken as a system for the occurrence of a data communication fault should be predetermined between the external device and programmable controller CPU.



CAUTION

- Do not bunch the control wires or communication cables with the main circuit or power wires, or install them close to each other.
They should be installed 100 mm or more from each other.
Not doing so could result in noise that would cause erroneous operation.
- When controlling items like lamp load, heater or solenoid valve using an output module, large current (approximately ten times greater than that present in normal circumstances) may flow when the output is turned OFF to ON.
Take measures such as replacing the module with one having sufficient rated current.

[Installation Precautions]

CAUTION

- Use the programmable controller in an environment that meets the general specifications contained in QCPU User's Manual (Hardware Design, Maintenance and Inspection).
Using this programmable controller in an environment outside the range of the general specifications could result in electric shock, fire, erroneous operation, and damage to or deterioration of the product.
- While pressing the installation lever located at the bottom of module, insert the module fixing tab into the fixing hole in the base unit until it stops. Then, securely mount the module with the fixing hole as a supporting point.
Incorrect loading of the module can cause a malfunction, failure or drop.
When using the programmable controller in the environment of much vibration, tighten the module with a screw.
Tighten the screw in the specified torque range.
Undertightening can cause a drop, short circuit or malfunction.
Overtightening can cause a drop, short circuit or malfunction due to damage to the screw or module.
- When installing extension cables, be sure that the base unit and the extension module connectors are installed correctly.
After installation, check them for looseness.
Poor connections could cause an input or output failure.
- Securely load the memory card into the memory card loading connector.
After installation, check for lifting.
Poor connections could cause an operation fault.
- Completely turn off the externally supplied power used in the system before mounting or removing the module. Not doing so could result in damage to the product. Note that the module can be changed online (while power is on) in the system that uses the CPU module compatible with online module change or on the MELSECNET/H remote I/O station.
Note that there are restrictions on the modules that can be changed online(while power is on), and each module has its predetermined changing procedure.
For details, refer to QCPU User's Manual (Hardware Design, Maintenance and Inspection) and the online module change section in the manual of the module compatible with online module change.
- Do not directly touch the module's conductive parts or electronic components.
Touching the conductive parts could cause an operation failure or give damage to the module.

[Wiring Precautions]

DANGER

- Completely turn off the externally supplied power used in the system when installing or placing wiring.
Not completely turning off all power could result in electric shock or damage to the product.
- When turning on the power supply or operating the module after installation or wiring work, be sure that the module's terminal covers are correctly attached.
Not attaching the terminal cover could result in electric shock.

[Wiring Precautions]

CAUTION

- Be sure to ground the FG terminals and LG terminals to the protective ground conductor.
Not doing so could result in electric shock or erroneous operation.
- When wiring the module, be sure that it is done correctly by checking the product's rated voltage and the terminal layout.
Connecting a power supply that is different from the rating or incorrectly wiring the product could result in fire or damage.
- External connections shall be crimped or pressure welded with the specified tools, or correctly soldered.
Imperfect connections could result in short circuit, fires, or erroneous operation.
- Tighten the terminal screws with the specified torque.
If the terminal screws are loose, it could result in short circuits, fire, or erroneous operation.
Tightening the terminal screws too far may cause damages to the screws and/or the module, resulting in fallout, short circuits, or malfunction.
- Be sure there are no foreign substances such as sawdust or wiring debris inside the module.
Such debris could cause fires, damage, or erroneous operation.
- The module has an ingress prevention label on its top to prevent foreign matter, such as wire offcuts, from entering the module during wiring.
Do not peel this label during wiring.
Before starting system operation, be sure to peel this label because of heat dissipation.

[Startup and Maintenance Precautions]

DANGER

- Do not touch the terminals while power is on.
Doing so could cause shock or erroneous operation.
- Correctly connect the battery.
Also, do not charge, disassemble, heat, place in fire, short circuit, or solder the battery.
Mishandling of battery can cause overheating or cracks which could result in injury and fires.
- Switch off all phases of the externally supplied power used in the system when cleaning the module or retightening the terminal or module mounting screws.
Not doing so could result in electric shock.
Undertightening of terminal screws can cause a short circuit or malfunction.
Overtightening of screws can cause damages to the screws and/or the module, resulting in fallout, short circuits, or malfunction.

[Startup and Maintenance Precautions]

CAUTION

- The online operations conducted for the CPU module being operated, connecting the peripheral device (especially, when changing data or operation status), shall be conducted after the manual has been carefully read and a sufficient check of safety has been conducted.
Operation mistakes could cause damage or problems with of the module.
- Do not disassemble or modify the modules.
Doing so could cause trouble, erroneous operation, injury, or fire.
- Use any radio communication device such as a cellular phone or a PHS phone more than 25cm away in all directions of the programmable controller.
Not doing so can cause a malfunction.
- Completely turn off the externally supplied power used in the system before mounting or removing the module. Not doing so could result in damage to the product.
Note that the module can be changed online (while power is on) in the system that uses the CPU module compatible with online module change or on the MELSECNET/H remote I/O station.
Note that there are restrictions on the modules that can be changed online (while power is on), and each module has its predetermined changing procedure.
For details, refer to QCPU User's Manual (Hardware Design, Maintenance and Inspection) and the online module change section in the manual of the module compatible with online module change.
- Do not mount/remove the module onto/from base unit more than 50 times (IEC61131-2-compliant), after the first use of the product. Failure to do so may cause the module to malfunction due to poor contact of connector.
- Do not drop or give an impact to the battery mounted to the module.
Doing so may damage the battery, causing the battery fluid to leak inside the battery.
If the battery is dropped or given an impact, dispose of it without using.
- Before touching the module, always touch grounded metal, etc. to discharge static electricity from human body, etc.
Not doing so can cause the module to fail or malfunction.

[Disposal Precautions]

CAUTION

- When disposing of this product, treat it as industrial waste.

[Transportation Precautions]

CAUTION

- When transporting lithium batteries, make sure to treat them based on the transport regulations. (Refer to QCPU User's Manual (Hardware Design, Maintenance and Inspection) for details of the controlled models.)

REVISIONS

* The handbook number is given on the bottom left of the back cover.

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1

INTRODUCTION

1.1 Replacing with the Q Series

The Q Series does not have an MELSEC-I/OLINK Remote I/O System Master Module. For this reason, examine replacing with the CC-Link/LT system when replacing the MELSEC-I/OLINK Remote I/O System with the Q Series.

1.2 Precautions for Replacement

- (a) Before replacing MELSEC-I/OLINK with CC-Link/LT, be sure to refer to the manuals for each of the CC-Link/LT modules, and confirm the functions, specifications and methods of use of the modules.
- (b) After replacing MELSEC-I/OLINK with CC-Link/LT, be sure to check operation of the entire system before starting actual operation.

2 PERFORMANCE SPECIFICATIONS COMPARISONS

2.1 Performance Specifications Comparison of MELSEC-I/OLINK and CC-Link/LT

○ : Compatible, △ : Partially changed, × : Not compatible

Item		Specifications				Compati- bility	Precautions for replacement
		MELSEC-I/OLINK	CC-Link/LT				
			4-point mode	8-point mode	16-point mode		
Per single master station	Max. number of link stations	16 stations (1 station 4 points)	64 stations			○	
	Max. number of control I/O points	128 points (when the same number is used on X and Y)	512 points (when the same number is used on X and Y)	1024 points (when the same number is used on X and Y)	2048 points (when the same number is used on X and Y)	○	
Link scan time*		Approx. 5.4ms	0.32 to 4.15ms	0.38 to 5.17ms	0.51 to 7.22ms	△	In the 16-point mode and 156 kbps, the link scan takes longer (7.22ms).
Overall distance		200m	35m (2.5 Mbps) 100m (625 kbps) 500m (156 kbps)			△	The overall distance changes according to the transmission speed.
Communication speed		38.4kbps	2.5Mbps/625kbps/156kbps			○	
Error control method		Parity check	CRC			○	
Network Topology		Bus (T-branch possible)	T-branch			○	
Connection cable		Twisted pair cable, Cabtire cable	CC-Link/LT dedicated flat cable VCTF cable, CC-Link Partner Association approved dedicated Flexible cable			×	New cable must be installed.
Terminating resistor		Not required	Required			×	A terminal resistor is mandatory.
Power supply adapter		Not required	Required			×	A power supply adapter is mandatory.
Number of occupied I/O points		16, 32, 48, 64 points	16, 32, 48, 64, 128, 256, 512, 1024 points			○	

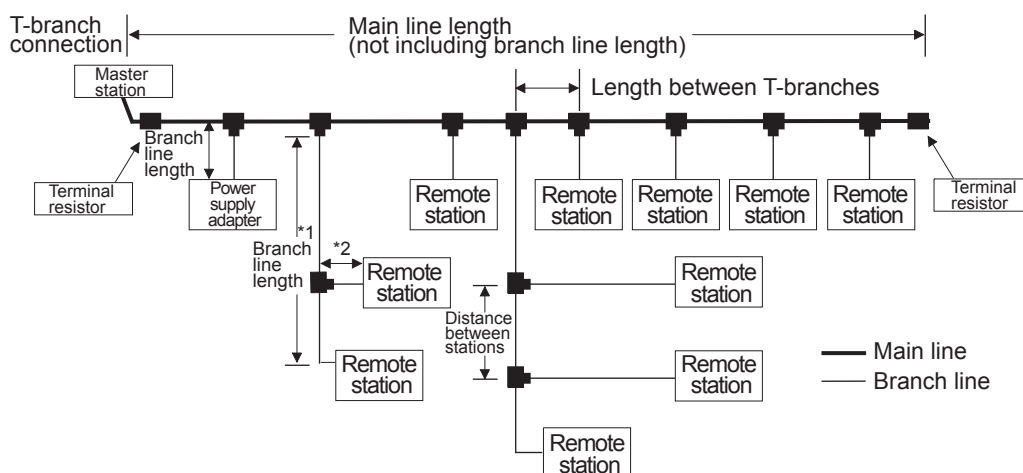
* The link scan time of CC-Link/LT are the based on following calculations:
 Minimum: Value of when 16 stations are connected at a transmission speed of 2.5 Mbps
 Maximum: Value of when 16 stations are connected at a transmission speed of 156 kbps

2.2 Wiring in CC-Link/LT

New cables must be laid when replacing MELSEC-I/OLINK with CC-Link/LT as the two systems differ in the applicable cable types. Also, a power supply adapter is mandatory with CC-Link/LT.

2.2.1 Transmission distance

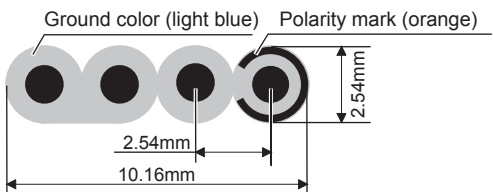
Item	Specifications			Remarks
Transmission speed	2.5Mbps	625kbps	156kbps	—
Distance between stations	Unrestricted			—
Max. number of stations connected on a branch line (per 1 branch)	8 stations			—
Main line length	35m	100m	500m	Cable length between terminating resistors (not including branch line length)
Length between T-branches	Unrestricted			—
Max. branch line length	4m	16m	60m	Cable length per 1 branch
Overall branch line length	15m	50m	200m	Total branch line length



*1: Branch line length includes length *2. (Max. branch line length and overall branch line length include length *2.)

2.2.2 Cable specifications

(1) CC-Link/LT dedicated flat cable specifications

Item	Specifications	Cross-section
Cable type	Flat cable	
Service temperature range	-10 to 80 °C	
Rated voltage	30V	
Number of cores	4	
Conductor resistance (at 20°C)	23.4 Ω /km or less	
Safety	UL Subject758	
Fire retardance	UL VW-1 • -F-	

(2) VCTF cable specifications (extracted from JIS 3306)

Type	Number of cores	Conductor			Conductor thickness	Sheath thickness	Conductor resistance (20°C)
		Nominal cross-sectional area	Number of component wires/wire diameter	Outside diameter			
Vinyl cabtire round cable	4 cores	0.75mm ²	30/0.18mm	1.1mm	0.6mm	1.0mm	25.1 Ω /km

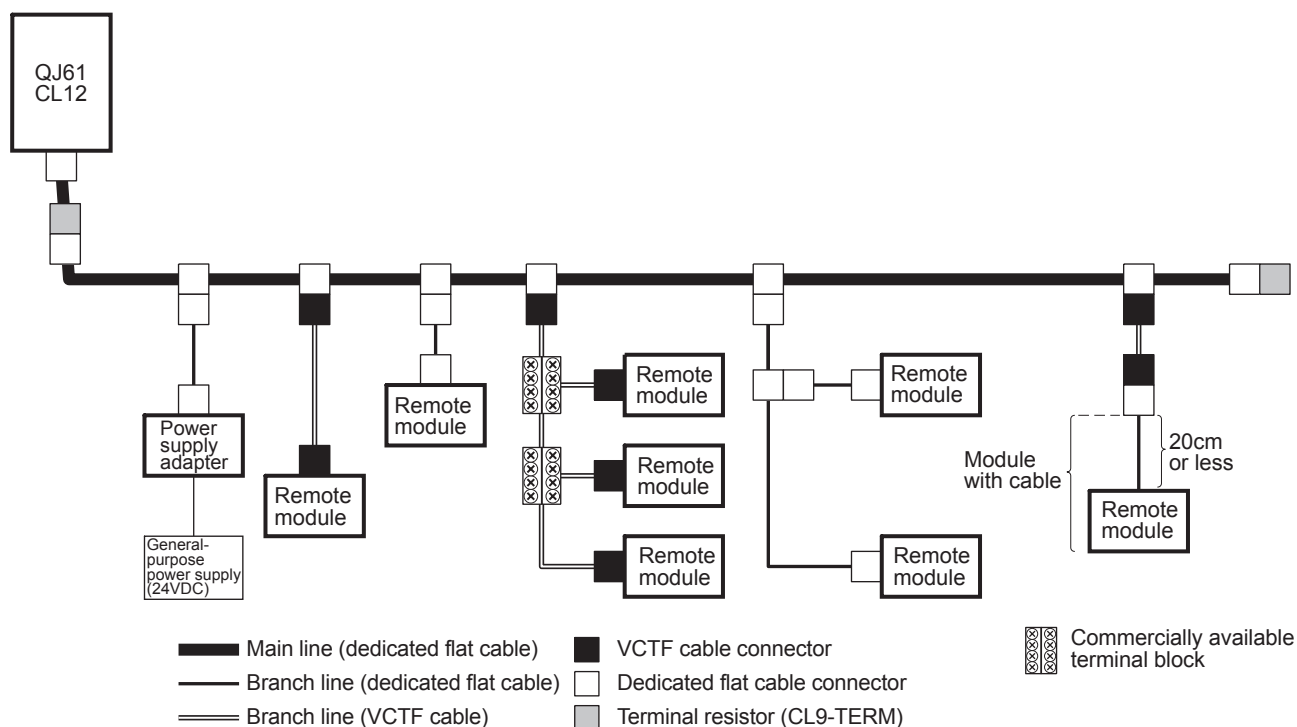
(3) CC-Link Partner Association approved dedicated movable cables supplies

Use the following dedicated movable cables approved by the CC-Link Partner Association.

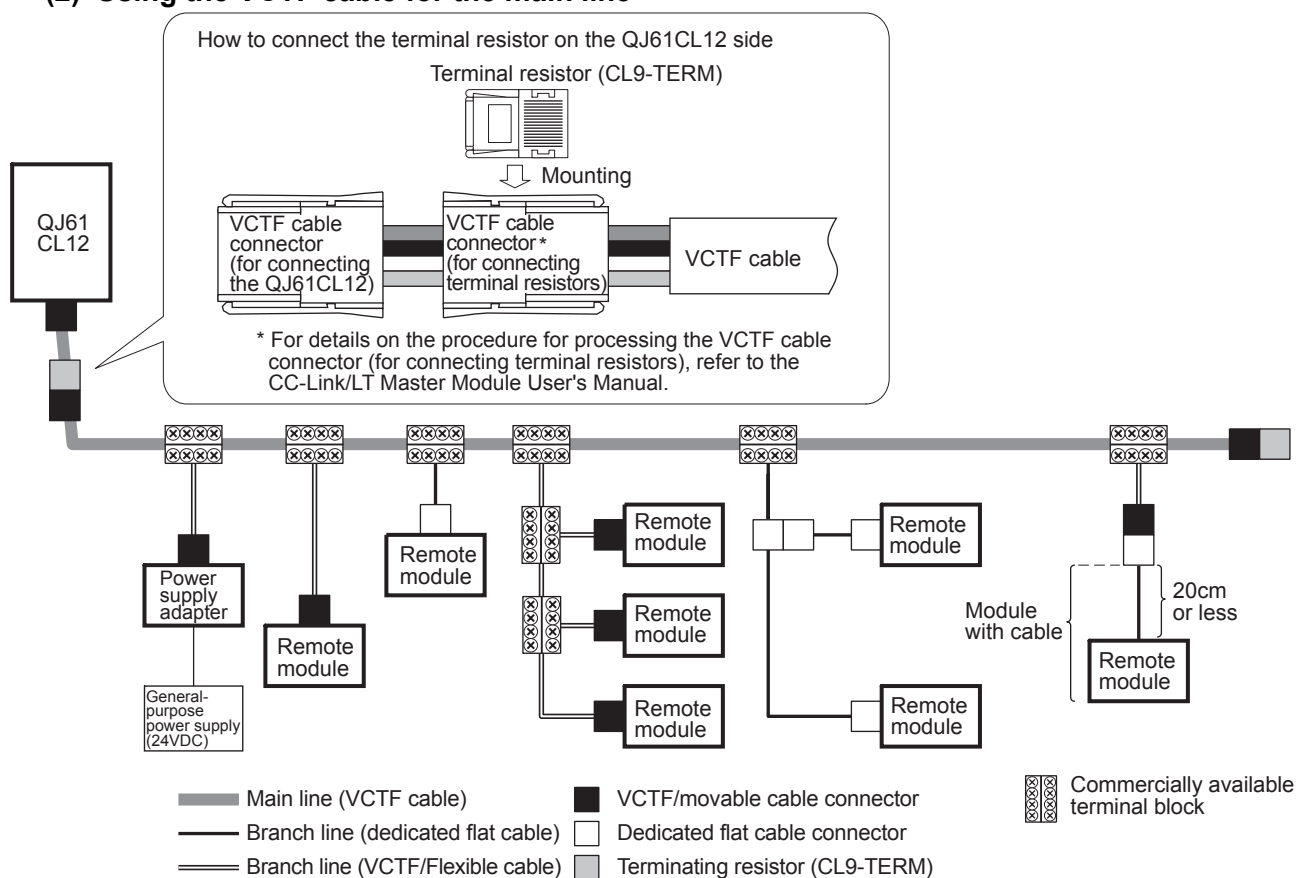
Name of manufacturer	Dedicated movable cable model name
Mitsubishi Electric System Service Co.,Ltd	CL9-MV4-075
DAIDEN Co., Ltd.	CM/LT(2586)AWG19/4C
Yoshinogawa Electric Wire & Cable Co., Ltd.	CRFV-A075C04-LT
KURAMO ELECTRIC CO., LTD.	FANC-Z/LT

2.2.3 Connection system

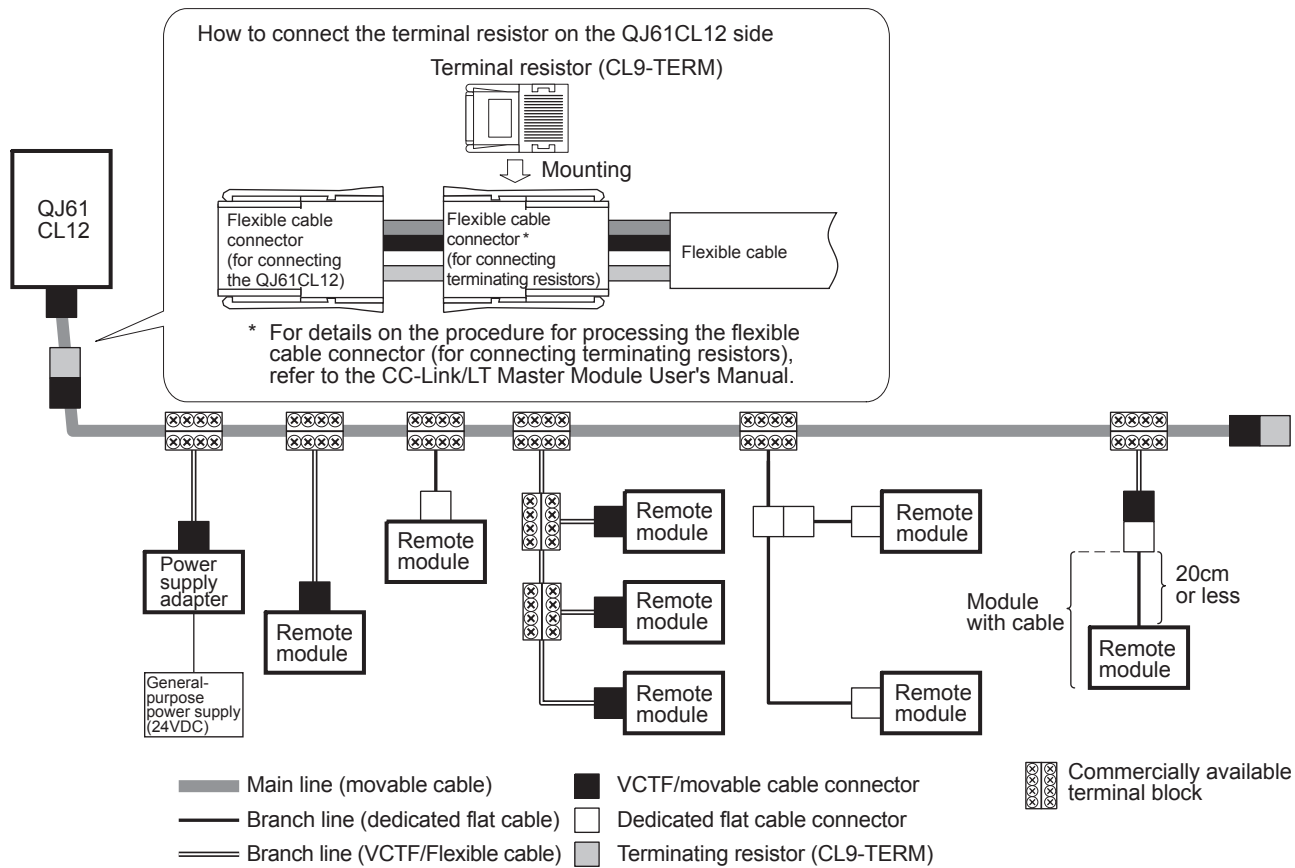
(1) Using the dedicated flat cable for the main line



(2) Using the VCTF cable for the main line



(3) Using the movable cable for the main line



3

FUNCTIONAL COMPARISONS

3.1 Functional Comparisons of MELSEC-I/OLINK and CC-Link/LT

○ : Compatible, △ : Partially changed, × : Not compatible

Item		Functions		Compati- bility	Precautions for replacement
		MELSEC-I/OLINK	CC-Link/LT		
Remote station communication		Communication with up to 16 slave stations is possible.	Communication with up to 64 slave stations is possible.	○	In the CC-Link/LT 4-point mode, I/O devices do not need to be changed on the program.
RAS function	Detection of faulty station (display)	Faulty stations can be known by the LED display (ERROR STATION) on the master station.	Faulty stations can be known in the CC-Link/LT diagnostics screen on GX Developer.	△	The error detection method differs. Review the program.
	Method of notifying the CPU module of error detection	When an error is detected, the CPU module is notified by fuse blown detection (M 9000). External output is also performed from the RUN A/B terminals on the MELSEC-I/OLINK Master Module.	An error can be known by the buffer memory error detailed information (address 16) on the CC-Link/LT Master Module. Note, however, that there is no external output from terminals.	△	
	Line check	Cable breaks can be checked by the lit state of the LEDs on the master station and slave stations.	The line can be diagnosed by line test and other station monitoring in the CC-Link/LT diagnostics screen on GX Developer.	△	
	Disconnection of faulty station	Stations not to be detected as faulty stations can be set by the ON LINE STATION switch on the master station.	An equivalent function is not available. Note, however, that errors are not detected on disconnected stations that are assigned the final station number, which is set in the final station number setting, or higher numbers.	△	

4

REPLACING THE MASTER MODULE

4.1 List of Alternative Master Module Models

MELSEC-I/OLINK		Alternative model for CC-Link/LT	
Product name	Model name	Model name	Remarks
Master module	AJ51T64 A1SJ51T64	QJ61CL12	Examine replacement with CC-Link/LT. For details, refer to the User's Manual for the respective module.

5

REPLACING THE I/O MODULES

5.1 List of Alternative I/O Module Models

MELSEC-I/OLINK		Alternative models for CC-Link/LT	
Product name	Model name	Model name	Remarks (restrictions)
Input module	AJ55TB3-4D	CL1X4-D1B2	(1) Change in external wiring: Required (2) Change in number of modules: Not required (3) Program changes Change in number of occupied I/O points: Not required. (in 4-point mode) (4) Specifications change Change in rated input voltage: Not required Change in rated input current: Required Change in ON voltage/ON current: Required Change in OFF voltage/OFF current: Required Change in input resistance: Required (5) Change in functions: Required (3-wire type → 2-wire type)
	AJ55TB3-8D	CL2X8-D1B2	(1) Change in external wiring: Required (2) Change in number of modules: Not required (3) Program changes Change in number of occupied I/O points: Not required. (in 4-point mode) (4) Specifications change Change in rated input voltage: Not required Change in rated input current: Required Change in ON voltage/ON current: Required Change in OFF voltage/OFF current: Required Change in input resistance: Required (5) Change in functions: Required (3-wire type → 2-wire type)
	AJ55TB3-16D	CL2X8-D1B2	(1) Change in external wiring: Required (2) Change in number of modules: Required (2 modules necessary) (3) Program changes Change in number of occupied I/O points: Not required. (in 4-point mode) (4) Specifications change Change in rated input voltage: Not required Change in rated input current: Required Change in ON voltage/ON current: Required Change in OFF voltage/OFF current: Required Change in input resistance: Required (5) Change in functions: Required (3-wire type → 2-wire type)

MELSEC-I/OLINK		Alternative models for CC-Link/LT	
Product name	Model name	Model name	Remarks (restrictions)
Output module	AJ55TB2-4R	CL1Y4-R1B2	(1) Change in external wiring: Required (2) Change in number of modules: Not required (3) Program changes Change in number of occupied I/O points: Not required. (in 4-point mode) (4) Specifications change Change in rated output voltage: Required Change in rated output current: Not required (5) Change in functions: Not required
	AJ55TB2-8R	CL1Y4-R1B2	(1) Change in external wiring: Required (2) Change in number of modules: Required (2 modules necessary) (3) Program changes Change in number of occupied I/O points: Not required. (in 4-point mode) (4) Specifications change Change in rated output voltage: Required Change in rated output current: Not required (5) Change in functions: Not required
	AJ55TB2-16R	CL1Y4-R1B2	(1) Change in external wiring: Required (2) Change in number of modules: Required (4 modules necessary) (3) Program changes Change in number of occupied I/O points: Not required. (in 4-point mode) (4) Specifications change Change in rated output voltage: Required Change in rated output current: Not required (5) Change in functions: Not required
	AJ55TB2-4T	CL1Y4-T1B2	(1) Change in external wiring: Required (2) Change in number of modules: Not required (3) Program changes Change in number of occupied I/O points: Not required. (in 4-point mode) (4) Specifications change Change in rated output voltage: Not required Change in rated output current: Required (5) Change in functions: Not required
	AJ55TB2-8T	CL2Y8-TP1B2	(1) Change in external wiring: Required (2) Change in number of modules: Not required (3) Program changes Change in number of occupied I/O points: Not required. (in 4-point mode) (4) Specifications change Change in rated output voltage: Not required Change in rated output current: Required (5) Change in functions: Not required
	AJ55TB2-16T	CL2Y8-TP1B2	(1) Change in external wiring: Required (2) Change in number of modules: Required (2 modules necessary) (3) Program changes Change in number of occupied I/O points: Not required. (in 4-point mode) (4) Specifications change Change in rated output voltage: Not required Change in rated output current: Required (5) Change in functions: Not required

MELSEC-I/OLINK		Alternative models for CC-Link/LT	
Product name	Model name	Model name	Remarks (restrictions)
I/O module	AJ55TB32-4DR	CL1XY4-DR1B2	(1) Change in external wiring: Required (2) Change in number of modules: Not required (3) Program changes Change in number of occupied I/O points: Not required. (in 4-point mode) (4) Specifications change Change in rated input voltage: Not required Change in rated input current: Required Change in ON voltage/ON current: Required Change in OFF voltage/OFF current: Required Change in input resistance: Required Change in rated output voltage: Required Change in rated output current: Not required (5) Change in functions: Required (input: 3-wire type → 2-wire type)
	AJ55TB32-8DR	CL1XY8-DR1B2	(1) Change in external wiring: Required (2) Change in number of modules: Not required (3) Program changes Change in number of occupied I/O points: Not required. (in 4-point mode) (4) Specifications change Change in rated input voltage: Not required Change in rated input current: Required Change in ON voltage/ON current: Required Change in OFF voltage/OFF current: Required Change in input resistance: Required Change in rated output voltage: Required Change in rated output current: Not required (5) Change in functions: Required (input: 3-wire type → 2-wire type)
	AJ55TB32-16DR	CL1XY8-DR1B2	(1) Change in external wiring: Required (2) Change in number of modules: Required (2 modules necessary) (3) Program changes Change in number of occupied I/O points: Not required. (in 4-point mode) (4) Specifications change Change in rated input voltage: Not required Change in rated input current: Required Change in ON voltage/ON current: Required Change in OFF voltage/OFF current: Required Change in input resistance: Required Change in rated output voltage: Required Change in rated output current: Not required (5) Change in functions: Required (input: 3-wire type → 2-wire type)

MELSEC-I/OLINK		Alternative models for CC-Link/LT	
Product name	Model name	Model name	Remarks (restrictions)
I/O module	AJ55TB32-4DT	CL1XY4-DT1B2	(1) Change in external wiring: Required (2) Change in number of modules: Not required (3) Program changes Change in number of occupied I/O points: Not required. (in 4-point mode) (4) Specifications change Change in rated input voltage: Not required Change in rated input current: Required Change in ON voltage/ON current: Required Change in OFF voltage/OFF current: Required Change in input resistance: Required Change in rated output voltage: Required Change in rated output current: Required (5) Change in functions: Required (input: 3-wire type → 2-wire type)
	AJ55TB32-8DT	CL1XY8-DT1B2	(1) Change in external wiring: Required (2) Change in number of modules: Not required (3) Program changes Change in number of occupied I/O points: Not required. (in 4-point mode) (4) Specifications change Change in rated input voltage: Not required Change in rated input current: Required Change in ON voltage/ON current: Required Change in OFF voltage/OFF current: Required Change in input resistance: Required Change in rated output voltage: Required Change in rated output current: Required (5) Change in functions: Required (input: 3-wire type → 2-wire type)
	AJ55TB32-16DT	CL1XY8-DT1B2	(1) Change in external wiring: Required (2) Change in number of modules: Required (2 modules necessary) (3) Program changes Change in number of occupied I/O points: Not required. (in 4-point mode) (4) Specifications change Change in rated input voltage: Not required Change in rated input current: Required Change in ON voltage/ON current: Required Change in OFF voltage/OFF current: Required Change in input resistance: Required Change in rated output voltage: Required Change in rated output current: Required (5) Change in functions: Required (input: 3-wire type → 2-wire type)

5.2 I/O Module Specifications Comparisons

5.2.1 Input module specifications comparisons

(1) Comparisons between AJ55TB3-4D and CL1X4-D1B2

○ : Compatible, △ : Partially changed, × : Not compatible

Specifications		AJ55TB3-4D	CL1X4-D1B2	Compatibility	Precautions for replacement
Number of input points		4 points	4 points	○	
Isolation method		Photocoupler	Photocoupler	○	
Rated input voltage		24VDC	24VDC	○	
Rated input current		Approx. 7mA	Approx. 4mA	△	Rated input current is smaller.*1
Operating voltage range		19.2 to 26.4VDC (ripple ratio within 5%)	20.4 to 28.8VDC (ripple ratio within 5%)	△	Operating voltage range is different.
Maximum simultaneous on input point		100%	100%	○	
ON voltage/ON current		14VDC or more/3.5mA or more	19VDC or more/3mA or more	△	Use caution on the voltage level.
OFF voltage/OFF current		6VDC or less/1.7mA or less	11VDC or less/1.7mA or less	△	Use caution on the voltage level.
Input resistance		Approx. 3.3k Ω	Approx. 5.6k Ω	△	Input resistance is greater.*1
Response time	OFF → ON	10ms or less	High-speed setting: 0.5ms or less Standard setting: 1.5ms or less	○	Standard setting: Use at 1.5ms.
	ON → OFF	10ms or less	High-speed setting: 0.5ms or less Standard setting: 1.5ms or less	○	Standard setting: Use at 1.5ms.
Common terminal arrangement		4 points per common (3-wire type terminal block)	4 points per common (2-wire type terminal block)	△	To connect a 3-wire type sensor, etc., an external common terminal block is required.
Number of occupied stations		1 station occupied	In 4-, 8- and 16-point modes: 1 station occupied	○	Set to the 4-point mode.
Operation indicator		ON indication (LED)	ON indication (LED)	○	
External wiring method		16-point terminal block (M3 screw) Transmission circuit included	8-point terminal block (M3 screw) Dedicated connector for each of transmission and module power supply	×	Wiring must be changed. A dedicated connector is used to make wiring connection for transmission and module power supply.
Applicable wire size		0.75 to 2mm ²	0.3 to 1.25mm ²	×	
Applicable crimping terminal		1.25-3, 1.25-YS3A, 2-S3, 2-YS3A, V1.25-3, V1.25-YS3A, V2-S3, V2-YS3A	RAV1.25-3, V1.25-3, 1.25-3, TG1-3	×	
I/O module power supply	Voltage	15.6 to 27.6VDC (peak voltage 27.6VDC)	20.4 to 28.8VDC (ripple ratio within 5%)	△	Operating voltage range is different.
	Current	35mA	40mA	△	The current consumption has increased, so the current capacity must be reviewed.
External dimensions		50(H) × 82(W) × 66(D)mm	53.5(H) × 50(W) × 40(D) mm	×	The external dimensions is different. Use caution on the mounting.
Weight		0.2kg	0.06kg	○	

*1: Confirm the specifications of the sensors or switches to be connected to the CL1X4-D1B2.

(2) Comparisons between AJ55TB3-8D and CL2X8-D1B2

○ : Compatible, △ : Partially changed, × : Not compatible

Specifications		AJ55TB3-8D	CL2X8-D1B2	Compati- bility	Precautions for replacement
Number of input points		8 points	8 points	○	
Isolation method		Photocoupler	Photocoupler	○	
Rated input voltage		24VDC	24VDC	○	
Rated input current		Approx. 7mA	Approx. 4mA	△	Rated input current is smaller.*1
Operating voltage range		19.2 to 26.4VDC (ripple ratio within 5%)	20.4 to 28.8VDC (ripple ratio within 5%)	△	Operating voltage range is different.
Maximum simultaneous on input point		100%	100%	○	
ON voltage/ON current		14VDC or more/3.5mA or more	19VDC or more/3mA or more	△	Use caution on the voltage level.
OFF voltage/OFF current		6VDC or less/1.7mA or less	11VDC or less/1.7mA or less	△	Use caution on the voltage level.
Input resistance		Approx. 3.3k Ω	Approx. 5.6k Ω	△	Input resistance is greater.*1
Response time	OFF → ON	10ms or less	High-speed setting: 0.1 ms or less Standard setting: 1.5ms or less	○	Standard setting: Use at 1.5ms.
	ON → OFF	10ms or less	High-speed setting: 0.5ms or less Standard setting: 1.5ms or less	○	Standard setting: Use at 1.5ms.
Common terminal arrangement		8 points per common (3-wire type terminal block)	8 points per common (2-wire type terminal block)	△	With the optional common terminal block (CL2TE-5), the terminal block can be used as a 3-wire type terminal block.
Number of occupied stations		2 stations occupied	In 4-point mode: 2 stations occupied In 8- and 16-point mode: 1 station occupied	○	Set to the 4-point mode.
Operation indicator		ON indication (LED)	ON indication (LED)	○	
External wiring method		24-point terminal block (M3 screw) Transmission circuit included	14-point terminal block (M3 screw) Dedicated connector for each of transmission and module power supply	×	Wiring must be changed. A dedicated connector is used to make wiring connection for transmission and module power supply.
Applicable wire size		0.75 to 2mm ²	0.3 to 1.25mm ²	×	
Applicable crimping terminal		1.25-3, 1.25-YS3A, 2-S3, 2-YS3A, V1.25-3, V1.25-YS3A, V2-S3, V2-YS3A	RAV1.25-3, V1.25-3, 1.25-3, TG1-3	×	
I/O module power supply	Voltage	15.6 to 27.6VDC (peak voltage 27.6VDC)	20.4 to 28.8VDC (ripple ratio within 5%)	△	Operating voltage range is different.
	Current	45 mA	40 mA or less	○	
External dimensions		50(H) × 114(W) × 66(D)mm	53.5(H) × 64(W) × 40(D) mm	×	The external dimensions is different. Use caution on the mounting.
Weight		0.3kg	0.09 kg	○	

*1: Confirm the specifications of the sensors or switches to be connected to the CL2X8-D1B2.

(3) Comparisons between AJ55TB3-16D and CL2X8-D1B2

○: Compatible, △: Partially changed, ×: Not compatible

Specifications		AJ55TB3-16D	CL2X8-D1B2	Compati- bility	Precautions for replacement
Number of input points		16 points	8 points	×	When nine or more points are used, use two CL2X8-D1B2 modules.
Isolation method		Photocoupler	Photocoupler	○	
Rated input voltage		24VDC	24VDC	○	
Rated input current		Approx. 7mA	Approx. 4mA	△	Rated input current is smaller.*1
Operating voltage range		19.2 to 26.4VDC (ripple ratio within 5%)	20.4 to 28.8VDC (ripple ratio within 5%)	△	Operating voltage range is different.
Maximum simultaneous on input point		100%	100%	○	
ON voltage/ON current		14VDC or more/3.5mA or more	19VDC or more/3mA or more	△	Use caution on the voltage level.
OFF voltage/OFF current		6VDC or less/1.7mA or less	11VDC or less/1.7mA or less	△	Use caution on the voltage level.
Input resistance		Approx. 3.3k Ω	Approx. 5.6k Ω	△	Input resistance is greater.*1
Response time	OFF → ON	10ms or less	High-speed setting: 0.1 ms or less Standard setting: 1.5ms or less	○	Standard setting: Use at 1.5ms.
	ON → OFF	10ms or less	High-speed setting: 0.5ms or less Standard setting: 1.5ms or less	○	Standard setting: Use at 1.5ms.
Common terminal arrangement		16 points per common (3-wire type terminal block)	8 points per common (2-wire type terminal block)	△	With the optional common terminal block (CL2TE-5), the terminal block can be used as a 3-wire type terminal block.
Number of occupied stations		4 stations occupied	In 4-point mode: 2 stations occupied In 8- and 16-point mode: 1 station occupied	△	Set to the 4-point mode.
Operation indicator		ON indication (LED)	ON indication (LED)	○	
External wiring method		40-point terminal block (M3 screw) Transmission circuit included	14-point terminal block (M3 screw) Dedicated connector for each of transmission and module power supply	×	Wiring must be changed. A dedicated connector is used to make wiring connection for transmission and module power supply.
Applicable wire size		0.75 to 2mm ²	0.3 to 1.25mm ²	×	
Applicable crimping terminal		1.25-3, 1.25-YS3A, 2-S3, 2-YS3A, V1.25-3, V1.25-YS3A, V2-S3, V2-YS3A	RAV1.25-3, V1.25-3, 1.25-3, TG1-3	×	
I/O module power supply	Voltage	15.6 to 27.6VDC (peak voltage 27.6VDC)	20.4 to 28.8VDC (ripple ratio within 5%)	△	Operating voltage range is different.
	Current	60mA	40 mA or less	△	Using two CL2X8-D1B2 modules requires higher current consumption, so the current capacity must be reviewed.
External dimensions		50(H) × 177(W) × 66(D)mm	53.5(H) × 64(W) × 40(D) mm	×	The external dimensions is different. Use caution on the mounting.
Weight		0.4kg	0.09 kg	○	

*1: Confirm the specifications of the sensors or switches to be connected to the CL2X8-D1B2.

5.2.2 Comparison of output unit specifications

(1) Comparisons between AJ55TB2-4R and CL1Y4-R1B2

○ : Compatible, △ : Partially changed, × : Not compatible

Specifications		AJ55TB2-4R	CL1Y4-R1B2	Compatibility	Precautions for replacement
Number of output points		4 points	4 points	○	
Isolation method		Photocoupler	Photocoupler	○	
Rated load voltage/ current		24VDC 2A (resistance load)/ point 240VAC 2A (COS ϕ =1)/point 8A/common	30VDC 2A/point 240VAC 2A/point 4A/common	△	Common current capacity is smaller.
Minimum switching load		5VDC 1mA	5VDC 2mA	△	Confirm the specifications of the load to be used.
Maximum switching voltage		250VAC, 110VDC	250VAC, 30VDC	△	
Response time	OFF → ON	10ms or less	10ms or less	○	
	ON → OFF	12ms or less	10ms or less	○	
Mechanical life		20 million times or more	—	—	
Electrical life		Rated switching voltage/ current load 100,000 times or more 200VAC 1.5A, 240VAC 1A (COS ϕ =0.7) 100,000 times or more 200VAC 1A, 240VAC 0.5A (COS ϕ =0.35) 100,000 times or more 24VDC 1A, 100VDC 0.1A (L/R=7ms) 100,000 times or more	200VAC 1.5A, 240VAC 1A (COS ϕ =0.7) 100,000 times or more 200VAC 1A, 240VAC 0.1A (COS ϕ =0.35) 100,000 times or more 24VDC 1A, 100VDC 0.1A (L/R=7ms) 100,000 times or more	○	
Maximum switching frequency		3,600 times/hr	—	—	
External power supply	Voltage	24VDC $\pm$ 10% Ripple voltage 4Vp-p or less	20.4 to 28.8VDC (ripple ratio within 5%)	○	
	Current	23mA (24VDC TYP. all points ON)	Included in I/O unit power supply	—	
Surge suppressor		None	None	○	
Common terminal arrangement		4 points per common (2-wire type terminal block)	4 points per common (2-wire type terminal block)	○	
Number of occupied stations		1 station occupied	In 4-, 8- and 16-point modes: 1 station occupied	○	Set to the 4-point mode.
Operation indicator		ON indication (LED)	ON indication (LED)	○	
External wiring method		16-point terminal block (M3 screw) Transmission circuit included	16-point terminal block (M3 screw) Dedicated connector for each of transmission and module power supply	×	Wiring must be changed. A dedicated connector is used to make wiring connection for transmission and module power supply.
Applicable wire size		0.75 to 2mm ²	0.3 to 1.25mm ²	×	
Applicable crimping terminal		1.25-3, 1.25-YS3A, 2-S3, 2-YS3A V1.25-3, V1.25-YS3A, V2-S3, V2-YS3A	RAV1.25-3, V1.25-3, 1.25-3, TG1-3	×	
I/O module power supply	Voltage	15.6 to 27.6VDC (peak voltage 27.6VDC)	20.4 to 28.8VDC (ripple ratio within 5%)	△	Operating voltage range is different.
	Current	50mA	65mA	△	The current consumption has increased, so the current capacity must be reviewed.
External dimensions		50(H) × 82(W) × 66(D)mm	53.5(H) × 80(W) × 40(D) mm	×	The external dimensions is different. Use caution on the mounting.
Weight		0.2kg	0.11kg	○	

(2) Comparisons between AJ55TB2-8R and CL1Y4-R1B2

○: Compatible, △: Partially changed, ×: Not compatible

Specifications		AJ55TB2-8R	CL1Y4-R1B2	Compatibility	Precautions for replacement
Number of output points		8 points	4 points	×	When five or more points are used, use two CL1Y4-R1B2 modules.
Isolation method		Photocoupler	Photocoupler	○	
Rated load voltage/current		24VDC 2A (resistance load)/point 240VAC 2A (COS ϕ =1)/point 8A/common	30VDC 2A/point 240VAC 2A/point 4A/common	○	
Minimum switching load		5VDC 1mA	5VDC 2mA	△	Confirm the specifications of the load to be used.
Maximum switching voltage		250VAC, 110VDC	250VAC, 30VDC	△	
Response time	OFF → ON	10ms or less	10ms or less	○	
	ON → OFF	12ms or less	10ms or less	○	
Mechanical life		20 million times or more	—	—	
Electrical life		Rated switching voltage/current load 100,000 times or more 200VAC 1.5A, 240VAC 1A (COS ϕ =0.7) 100,000 times or more 200VAC 1A, 240VAC 0.5A (COS ϕ =0.35) 100,000 times or more 24VDC 1A, 100VDC 0.1A (L/R=7ms) 100,000 times or more	200VAC 1.5A, 240VAC 1A (COS ϕ =0.7) 100,000 times or more 200VAC 1A, 240VAC 0.1A (COS ϕ =0.35) 100,000 times or more 24VDC 1A, 100VDC 0.1A (L/R=7ms) 100,000 times or more	○	
Maximum switching frequency		3,600 times/hr	—	—	
External power supply	Voltage	24VDC $\pm$ 10% Ripple voltage 4Vp-p or less	20.4 to 28.8VDC (ripple ratio within 5%)	○	
	Current	45mA (24VDC TYP. all points ON)	Included in I/O unit power supply	—	
Surge suppressor		None	None	○	
Common terminal arrangement		8 points per common (2-wire type terminal block)	4 points per common (2-wire type terminal block)	○	
Number of occupied stations		2 station occupied	In 4-, 8- and 16-point modes: 1 station occupied	△	Set to the 4-point mode.
Operation indicator		ON indication (LED)	ON indication (LED)	○	
External wiring method		24-point terminal block (M3 screw) Transmission circuit included	16-point terminal block (M3 screw) Dedicated connector for each of transmission and module power supply	×	Wiring must be changed. A dedicated connector is used to make wiring connection for transmission and module power supply.
Applicable wire size		0.75 to 2mm ²	0.3 to 1.25mm ²	×	
Applicable crimping terminal		1.25-3, 1.25-YS3A, 2-S3, 2-YS3A, V1.25-3, V1.25-YS3A, V2-S3, V2-YS3A	RAV1.25-3, V1.25-3, 1.25-3, TG1-3	×	
I/O module power supply	Voltage	15.6 to 27.6VDC (peak voltage 27.6VDC)	20.4 to 28.8VDC (ripple ratio within 5%)	△	Operating voltage range is different.
	Current	65mA	65mA	△	Using two CL1Y4-R1B2 modules requires higher current consumption, so the current capacity must be reviewed.
External dimensions		50(H) × 114(W) × 66(D)mm	53.5(H) × 80(W) × 40(D) mm	×	The external dimensions is different. Use caution on the mounting.
Weight		0.3kg	0.11kg	○	

(3) Comparisons between AJ55TB2-16R and CL1Y4-R1B2

○ : Compatible, △ : Partially changed, × : Not compatible

Specifications		AJ55TB2-16R	CL1Y4-R1B2	Compatibility	Precautions for replacement
Number of output points		16 points	4 points	×	When sixteen points are used, use four CL1Y4-R1B2 modules.
Isolation method		Photocoupler	Photocoupler	○	
Rated load voltage/ current		24VDC 2A (resistance load)/ point 240VAC 2A (COS ϕ =1)/point 8A/common	30VDC 2A/point 240VAC 2A/point 4A/common	○	
Minimum switching load		5VDC 1mA	5VDC 2mA	△	Confirm the specifications of the load to be used.
Maximum switching voltage		250VAC, 110VDC	250VAC, 30VDC	△	
Response time	OFF → ON	10ms or less	10ms or less	○	
	ON → OFF	12ms or less	10ms or less	○	
Mechanical life		20 million times or more	—	—	
Electrical life		Rated switching voltage/ current load 100,000 times or more 200VAC 1.5A, 240VAC 1A (COS ϕ =0.7) 100,000 times or more 200VAC 1A, 240VAC 0.5A (COS ϕ =0.35) 100,000 times or more 24VDC 1A, 100VDC 0.1A (L/R=7ms) 100,000 times or more	200VAC 1.5A, 240VAC 1A (COS ϕ =0.7) 100,000 times or more 200VAC 1A, 240VAC 0.1A (COS ϕ =0.35) 100,000 times or more 24VDC 1A, 100VDC 0.1A (L/R=7ms) 100,000 times or more	○	
Maximum switching frequency		3,600 times/hr	—	—	
External power supply	Voltage	24VDC $\pm$ 10% Ripple voltage 4Vp-p or less	20.4 to 28.8VDC (ripple ratio within 5%)	○	
	Current	90mA (24VDC TYP. all points ON)	Included in I/O module power supply	—	
Surge suppressor		None	None	○	
Common terminal arrangement		8 points per common (2-wire type terminal block)	4 points per common (2-wire type terminal block)	○	
Number of occupied stations		4 stations occupied	In 4-, 8- and 16-point modes: 1 station occupied	△	Set to the 4-point mode.
Operation indicator		ON indication (LED)	ON indication (LED)	○	
External wiring method		40-point terminal block (M3 screw) Transmission circuit included	16-point terminal block (M3 screw) Dedicated connector for each of transmission and module power supply	×	Wiring must be changed. A dedicated connector is used to make wiring connection for transmission and module power supply.
Applicable wire size		0.75 to 2mm ²	0.3 to 1.25mm ²	×	
Applicable crimping terminal		1.25-3, 1.25-YS3A, 2-S3, 2-YS3A V1.25-3, V1.25-YS3A, V2-S3, V2-YS3A	RAV1.25-3, V1.25-3, 1.25-3, TG1-3	×	
I/O module power supply	Voltage	15.6 to 27.6VDC (peak voltage 27.6VDC)	20.4 to 28.8VDC (ripple ratio within 5%)	△	Operating voltage range is different.
	Current	85mA	65mA	△	Using two or more CL1Y4-R1B2 modules requires higher current consumption, so the current capacity must be reviewed.
External dimensions		50(H) × 177(W) × 66(D)mm	53.5(H) × 80(W) × 40(D) mm	×	The external dimensions is different. Use caution on the mounting.
Weight		0.4kg	0.11kg	○	

(4) Comparisons between AJ55TB2-4T and CL1Y4-T1B2

○ : Compatible, △ : Partially changed, × : Not compatible

Specifications		AJ55TB2-4T	CL1Y4-T1B2	Compati- bility	Precautions for replacement
Number of output points		4 points	4 points	○	
Isolation method		Photocoupler	Photocoupler	○	
Rated load voltage		12/24 VDC	12/24 VDC	○	
Operating load voltage range		10.2 to 30 VDC (peak voltage 30 VDC)	10.2 to 28.8VDC (ripple ratio within 5%)	△	Voltages exceeding 28.8 VDC cannot be applied.
Maximum load current		0.5 A/point, 2 A/common	0.1 A/point, 0.4 A/common	△	The maximum load current per point is smaller. Use caution on selecting the load to use.
Maximum inrush current		4.0 A, 10 ms or less	0.4A, 10ms or less	△	The inrush current value differs. Use caution on selecting the load to use.
Leakage current at OFF		0.1mA or less	0.1mA or less	○	
Maximum voltage drop at ON		0.9 VDC or less (TYP.) 0.5 A 1.5 VDC or less (MAX.) 0.5 A	0.3 VDC or less (TYP.) 0.1 A 0.6 VDC or less (MAX.) 0.1 A	○	
Response time	OFF → ON	2.0 ms or less	1.0ms or less	○	
	ON → OFF	2.0 ms or less (resistance load)	1.0ms or less (resistance load)	○	
External power supply	Voltage	10.2 to 30 VDC	–	–	External supply power is not required.
	Current	30 mA (24 VDC TYP. per 1 common)	–	–	External supply power is not required.
Surge suppressor		Zener diode	Zener diode	○	
Common terminal arrangement		4 points per common (2-wire type terminal block)	4 points per common (2-wire type terminal block)	○	
Number of occupied stations		1 station occupied	In 4-, 8- and 16-point modes: 1 station occupied	○	Set to the 4-point mode.
Operation indicator		ON indication (LED)	ON indication (LED)	○	
External wiring method		16-point terminal block (M3 screw) Transmission circuit included	8-point terminal block (M3 screw) Dedicated connector for each of transmission and module power supply	×	Wiring must be changed. A dedicated connector is used to make wiring connection for transmission and module power supply.
Applicable wire size		0.75 to 2mm ²	0.3 to 1.25mm ²	×	
Applicable crimping terminal		1.25-3, 1.25-YS3A, 2-S3, 2-YS3A V1.25-3, V1.25-YS3A, V2-S3, V2-YS3A	RAV1.25-3, V1.25-3, 1.25-3, TG1-3	×	
I/O module power supply	Voltage	15.6 to 27.6VDC (peak voltage 27.6VDC)	20.4 to 28.8VDC (ripple ratio within 5%)	△	Operating voltage range is different.
	Current	45mA	60mA or less	△	The current consumption has increased, so the current capacity must be reviewed.
External dimensions		50(H) × 82(W) × 66(D)mm	53.5(H) × 50(W) × 40(D) mm	×	The external dimensions is different. Use caution on the mounting.
Weight		0.2kg	0.06kg	○	

(5) Comparisons between AJ55TB2-8T and CL2Y8-TP1B2

○ : Compatible, △ : Partially changed, × : Not compatible

Specifications		AJ55TB2-8T	CL2Y8-TP1B2	Compati- bility	Precautions for replacement
Number of output points		8 points	8 points	○	
Isolation method		Photocoupler	Photocoupler	○	
Rated load voltage		12/24 VDC	12/24 VDC	○	
Operating load voltage range		10.2 to 30 VDC (peak voltage 30 VDC)	10.2 to 28.8VDC (ripple ratio within 5%)	△	Voltages exceeding 28.8 VDC cannot be applied.
Maximum load current		0.5A/point, 4A/common	0.1A/point, 0.8A/common	△	The maximum load current per point is smaller. Use caution on selecting the load to use.
Maximum inrush current		4.0 A, 10 ms or less	0.7A 10ms or less	△	The inrush current value differs. Use caution on selecting the load to use.
Leakage current at OFF		0.1mA or less	0.1mA or less	○	
Maximum voltage drop at ON		0.9 VDC or less (TYP.) 0.5 A 1.5 VDC or less (MAX.) 0.5 A	0.3 VDC or less (TYP.) 0.1 A 0.6 VDC or less (MAX.) 0.1 A	○	
Response time	OFF → ON	2.0 ms or less	0.5ms or less	○	
	ON → OFF	2.0 ms or less (resistance load)	0.5ms or less (resistance load)	○	
External power supply	Voltage	10.2 to 30 VDC	10.2 to 28.8VDC (ripple ratio within 5%)	△	Voltages exceeding 28.8 VDC cannot be applied.
	Current	60mA (24VDC TYP. per 1 common)	15 mA (24 VDC when all points are ON)	○	
Surge suppressor		Zener diode	Zener diode	○	
Common terminal arrangement		8 points per common (2-wire type terminal block)	8 points per common (2-wire type terminal block)	○	
Number of occupied stations		2 stations occupied	In 4-point mode: 2 stations occupied In 8- and 16-point mode: 1 station occupied	○	Set to the 4-point mode.
Operation indicator		ON indication (LED)	ON indication (LED)	○	
External wiring method		24-point terminal block (M3 screw) Transmission circuit included	14-point terminal block (M3 screw) Dedicated connector for each of transmission and module power supply	×	Wiring must be changed. A dedicated connector is used to make wiring connection for transmission and module power supply.
Applicable wire size		0.75 to 2mm ²	0.3 to 1.25mm ²	×	
Applicable crimping terminal		1.25-3, 1.25-YS3A, 2-S3, 2-YS3A V1.25-3, V1.25-YS3A, V2-S3, V2-YS3A	RAV1.25-3, V1.25-3, 1.25-3, TG1-3	×	
I/O module power supply	Voltage	15.6 to 27.6VDC (peak voltage 27.6VDC)	20.4 to 28.8VDC (ripple ratio within 5%)	△	Operating voltage range is different.
	Current	55 mA	40 mA or less	○	
External dimensions		50(H) × 114(W) × 66(D)mm	53.5(H) × 64(W) × 40(D) mm	×	The external dimensions is different. Use caution on the mounting.
Weight		0.3kg	0.09 kg	○	

(6) Comparisons between AJ55TB2-16T and CL2Y8-TP1B2

○: Compatible, △: Partially changed, ×: Not compatible

Specifications		AJ55TB2-16T	CL2Y8-TP1B2	Compati- bility	Precautions for replacement
Number of output points		16 points	8 points	×	When nine or more points are used, use two CL2Y8-TP1B2 modules.
Isolation method		Photocoupler	Photocoupler	○	
Rated load voltage		12/24 VDC	12/24 VDC	○	
Operating load voltage range		10.2 to 30 VDC (peak voltage 30 VDC)	10.2 to 28.8VDC (ripple ratio within 5%)	△	Voltages exceeding 28.8 VDC cannot be applied.
Maximum load current		0.5 A/point, 5.0 A/common	0.1A/point, 0.8A/common	△	The maximum load current per point is smaller. Use caution on selecting the load to use.
Maximum inrush current		4.0 A, 10 ms or less	0.7A 10ms or less	△	The inrush current value differs. Use caution on selecting the load to use.
Leakage current at OFF		0.1mA or less	0.1mA or less	○	
Maximum voltage drop at ON		0.9 VDC or less (TYP.) 0.5 A 1.5 VDC or less (MAX.) 0.5 A	0.3 VDC or less (TYP.) 0.1 A 0.6 VDC or less (MAX.) 0.1 A	○	
Response time	OFF → ON	2.0 ms or less	0.5ms or less	○	
	ON → OFF	2.0 ms or less (resistance load)	0.5ms or less (resistance load)	○	
External power supply	Voltage	10.2 to 30 VDC	10.2 to 28.8VDC (ripple ratio within 5%)	△	Voltages exceeding 28.8 VDC cannot be applied.
	Current	120mA (24VDC TYP. per 1 common)	15 mA (24 VDC when all points are ON)	○	
Surge suppressor		Zener diode	Zener diode	○	
Common terminal arrangement		16 points per common (2-wire type terminal block)	8 points per common (2-wire type terminal block)	○	
Number of occupied stations		4 stations occupied	In 4-point mode: 2 stations occupied In 8- and 16-point mode: 1 station occupied	△	Set to the 4-point mode.
Operation indicator		ON indication (LED)	ON indication (LED)	○	
External wiring method		40-point terminal block (M3 screw) Transmission circuit included	14-point terminal block (M3 screw) Dedicated connector for each of transmission and module power supply	×	Wiring must be changed. A dedicated connector is used to make wiring connection for transmission and module power supply.
Applicable wire size		0.75 to 2mm ²	0.3 to 1.25mm ²	×	
Applicable crimping terminal		1.25-3, 1.25-YS3A, 2-S3, 2-YS3A, V1.25-3, V1.25-YS3A, V2-S3, V2-YS3A	RAV1.25-3, V1.25-3, 1.25-3, TG1-3	×	
I/O module power supply	Voltage	15.6 to 27.6VDC (peak voltage 27.6VDC)	20.4 to 28.8VDC (ripple ratio within 5%)	△	Operating voltage range is different.
	Current	70mA	40 mA or less	△	Using two CL2Y8-TP1B2 modules requires higher current consumption, so the current capacity must be reviewed.
External dimensions		50(H) × 177(W) × 66(D)mm	53.5(H) × 64(W) × 40(D) mm	×	The external dimensions is different. Use caution on the mounting.
Weight		0.4kg	0.09 kg	○	

5.2.3 I/O module specifications comparisons

(1) Comparisons between AJ55TB32-4DR and CL1XY4-DR1B2

○ : Compatible, △ : Partially changed, × : Not compatible

Input specifications		AJ55TB32-4DR	CL1XY4-DR1B2	Compati- bility	Precautions for replacement
Number of input points		2 points	2 points	○	
Isolation method		Photocoupler	Photocoupler	○	
Rated input voltage		24VDC	24VDC	○	
Rated input current		Approx. 7mA	Approx. 4mA	△	Rated input current is smaller.*1
Operating voltage range		21.6 to 26.4VDC (ripple voltage 4Vp-p or less)	20.4 to 28.8VDC (ripple ratio within 5%)	○	
Maximum simultaneous on input point		100%	100%	○	
ON voltage/ON current		14VDC or more/3.5mA or more	19VDC or more/3mA or more	△	Use caution on the voltage level.
OFF voltage/OFF current		6VDC or less/1.7mA or less	11VDC or less/1.7mA or less	△	Use caution on the voltage level.
Input resistance		Approx. 3.3k Ω	Approx. 5.6k Ω	△	Input resistance is greater.*1
Response time	OFF → ON	10ms or less	1.5ms or less	○	
	ON → OFF	10ms or less	1.5ms or less	○	
Common terminal arrangement		2 points per common (3-wire type terminal block)	2 points per common (2-wire type terminal block)	△	To connect a 3-wire type sensor, etc., an external common terminal block is required.
Output specifications		AJ55TB32-4DR	CL1XY4-DR1B2	Compati- bility	Precautions for replacement
Number of output points		2 points	2 points	○	
Isolation method		Photocoupler	Photocoupler	○	
Rated load voltage/ current		24VDC 2A (resistance load)/ point 240VAC 2A (COS ϕ =1)/point 4A/common	30VDC 2A/point 240VAC 2A/point 4A/common	○	
Minimum switching load		5VDC 1mA	5VDC 2mA	△	Confirm the specifications of the load to be used.
Maximum switching voltage		250VAC, 110VDC	250VAC, 30VDC	△	
Response time	OFF → ON	10ms or less	10ms or less	○	
	ON → OFF	12ms or less	10ms or less	○	
Mechanical life		20 million times or more	—	—	
Electrical life		Rated switching voltage/ current load 100,000 times or more 200VAC 1.5A, 240VAC 1A (COS ϕ =0.7) 100,000 times or more 200VAC 1A, 240VAC 0.5A (COS ϕ =0.35) 100,000 times or more 24VDC 1A, 100VDC 0.1A (L/R=7ms) 100,000 times or more	200VAC 1.5A, 240VAC 1A (COS ϕ =0.7) 100,000 times or more 200VAC 1A, 240VAC 0.1A (COS ϕ =0.35) 100,000 times or more 24VDC 1A, 100VDC 0.1A (L/R=7ms) 100,000 times or more	○	
Maximum switching frequency		3,600 times/hr	—	—	
External power supply	Voltage	24VDC $\pm$ 10% Ripple voltage 4Vp-p or less	20.4 to 28.8VDC (ripple ratio within 5%)	○	
	Current	12mA (24VDC TYP. all points ON)	Included in I/O module power supply	—	
Surge suppressor		None	None	○	
Common terminal arrangement		2 points per common (2-wire type terminal block)	2 points per common (2-wire type terminal block)	○	

○ : Compatible, △ : Partially changed, × : Not compatible

Specifications		AJ55TB32-4DR	CL1XY4-DR1B2	Compati- bility	Precautions for replacement
Number of occupied stations		1 stations occupied	In 4-, 8- and 16-point mode: 1 station occupied	○	Set to the 4-point mode.
Operation indicator		ON indication (LED)	ON indication (LED)	○	
External wiring method		16-point terminal block (M3 screw) Transmission circuit included	16-point terminal block (M3 screw) Dedicated connector for each of transmission and module power supply	×	Wiring must be changed. A dedicated connector is used to make wiring connection for transmission and module power supply.
Applicable wire size		0.75 to 2mm ²	0.3 to 1.25mm ²	×	
Applicable crimping terminal		1.25-3, 1.25-YS3A, 2-S3, 2-YS3A V1.25-3, V1.25-YS3A, V2-S3, V2-YS3A	RAV1.25-3, V1.25-3, 1.25-3, TG1-3	×	
I/O module power supply	Voltage	15.6 to 27.6VDC (peak voltage 27.6VDC)	20.4 to 28.8VDC (ripple ratio within 5%)	△	Operating voltage range is different.
	Current	40mA	60mA	△	The current consumption has increased, so the current capacity must be reviewed.
External dimensions		50(H) × 82(W) × 66(D)mm	53.5(H) × 80(W) × 40(D) mm	×	The external dimensions is different. Use caution on the mounting.
Weight		0.2kg	0.11kg	○	

*1: Confirm the specifications of the sensors or switches to be connected to the CL1XY4-DR1B2.

(2) Comparisons between AJ55TB32-8DR and CL1XY8-DR1B2

○ : Compatible, △ : Partially changed, × : Not compatible

Input specifications		AJ55TB32-8DR	CL1XY8-DR1B2	Compati- bility	Precautions for replacement
Number of input points		4 points	4 points	○	
Isolation method		Photocoupler	Photocoupler	○	
Rated input voltage		24VDC	24VDC	○	
Rated input current		Approx. 7mA	Approx. 4mA	△	Rated input current is smaller.*1
Operating voltage range		21.6 to 26.4VDC (ripple voltage 4Vp-p or less)	20.4 to 28.8VDC (ripple ratio within 5%)	○	
Maximum simultaneous on input point		100%	100%	○	
ON voltage/ON current		14VDC or more/3.5mA or more	19VDC or more/3mA or more	△	Use caution on the voltage level.
OFF voltage/OFF current		6VDC or less/1.7mA or less	11VDC or less/1.7mA or less	△	Use caution on the voltage level.
Input resistance		Approx. 3.3k Ω	Approx. 5.6k Ω	△	Input resistance is greater.*1
Response time	OFF → ON	10ms or less	1.5ms or less	○	
	ON → OFF	10ms or less	1.5ms or less	○	
Common terminal arrangement		4 points per common (3-wire type terminal block)	4 points per common (2-wire type terminal block)	△	To connect a 3-wire type sensor, etc., an external common terminal block is required.
Output specifications		AJ55TB32-8DR	CL1XY8-DR1B2	Compati- bility	Precautions for replacement
Number of output points		4 points	4 points	○	
Isolation method		Photocoupler	Photocoupler	○	
Rated load voltage/ current		24VDC 2A (resistance load)/ point 240VAC 2A (COS ϕ =1)/point 8A/ common	30VDC 2A/point 240VAC 2A/point 4A/common	△	The specifications of the common current are halved. Use caution on the total value of load currents to use simultaneously.
Minimum switching load		5VDC 1mA	5VDC 2mA	△	Confirm the specifications of the load to be used.
Maximum switching voltage		250VAC, 110VDC	250VAC, 30VDC	△	
Response time	OFF → ON	10ms or less	10ms or less	○	
	ON → OFF	12ms or less	10ms or less	○	
Mechanical life		20 million times or more	–	–	
Electrical life		Rated switching voltage/ current load 100,000 times or more 200VAC 1.5A, 240VAC 1A (COS ϕ =0.7) 100,000 times or more 200VAC 1A, 240VAC 0.5A (COS ϕ =0.35) 100,000 times or more 24VDC 1A, 100VDC 0.1A (L/R=7ms) 100,000 times or more	200VAC 1.5A, 240VAC 1A (COS ϕ =0.7) 100,000 times or more 200VAC 1A, 240VAC 0.1A (COS ϕ =0.35) 100,000 times or more 24VDC 1A, 100VDC 0.1A (L/R=7ms) 100,000 times or more	○	
Maximum switching frequency		3,600 times/hr	–	–	
External power supply	Voltage	24VDC $\pm$ 10% Ripple voltage 4Vp-p or less	20.4 to 28.8VDC (ripple ratio within 5%)	○	
	Current	23mA (24VDC TYP. all points ON)	Included in I/O module power supply	–	
Surge suppressor		None	None	○	
Common terminal arrangement		4 points per common (2-wire type terminal block)	4 points per common (2-wire type terminal block)	○	

○ : Compatible, △ : Partially changed, × : Not compatible

Specifications		AJ55TB32-8DR	CL1XY8-DR1B2	Compati- bility	Precautions for replacement
Number of occupied stations		1 stations occupied	In 4-, 8- and 16-point mode: 1 station occupied	○	Set to the 4-point mode.
Operation indicator		ON indication (LED)	ON indication (LED)	○	
External wiring method		24-point terminal block (M3 screw) Transmission circuit included	16-point terminal block (M3 screw) Dedicated connector for each of transmission and module power supply	×	Wiring must be changed. A dedicated connector is used to make wiring connection for transmission and module power supply.
Applicable wire size		0.75 to 2mm ²	0.3 to 1.25mm ²	×	
Applicable crimping terminal		1.25-3, 1.25-YS3A, 2-S3, 2-YS3A V1.25-3, V1.25-YS3A, V2-S3, V2-YS3A	RAV1.25-3, V1.25-3, 1.25-3, TG1-3	×	
I/O module power supply	Voltage	15.6 to 27.6VDC (peak voltage 27.6VDC)	20.4 to 28.8VDC (ripple ratio within 5%)	△	Operating voltage range is different.
	Current	50mA	70mA	△	The current consumption has increased, so the current capacity must be reviewed.
External dimensions		50(H) × 114(W) × 66(D)mm	53.5(H) × 80(W) × 40(D) mm	×	The external dimensions is different. Use caution on the mounting.
Weight		0.3kg	0.11kg	○	

*1: Confirm the specifications of the sensors or switches to be connected to the CL1XY8-DR1B2.

(3) Comparisons between AJ55TB32-16DR and CL1XY8-DR1B2

○ : Compatible, △ : Partially changed, × : Not compatible

Input specifications		AJ55TB32-16DR	CL1XY8-DR1B2	Compati- bility	Precautions for replacement
Number of input points		8 points	4 points	×	When five or more points are used, use two CL1XY8-DR1B2 modules.
Isolation method		Photocoupler	Photocoupler	○	
Rated input voltage		24VDC	24VDC	○	
Rated input current		Approx. 7mA	Approx. 4mA	△	Rated input current is smaller.*1
Operating voltage range		21.6 to 26.4VDC (ripple voltage 4Vp-p or less)	20.4 to 28.8VDC (ripple ratio within 5%)	○	
Maximum simultaneous on input point		100%	100%	○	
ON voltage/ON current		14VDC or more/3.5mA or more	19VDC or more/3.0mA or more	△	Use caution on the voltage level.
OFF voltage/OFF current		6VDC or less/1.7mA or less	11VDC or less/1.7mA or less	△	Use caution on the voltage level.
Input resistance		Approx. 3.3k Ω	Approx. 5.6k Ω	△	Input resistance is greater.*1
Response time	OFF → ON	10ms or less	1.5ms or less	○	
	ON → OFF	10ms or less	1.5ms or less	○	
Common terminal arrangement		8 points per common (3-wire type terminal block)	4 points per common (2-wire type terminal block)	△	To connect a 3-wire type sensor, etc., an external common terminal block is required.
Output specifications		AJ55TB32-16DR	CL1XY8-DR1B2	Compati- bility	Precautions for replacement
Number of output points		8 points	4 points	×	When five or more points are used, use two CL1XY8-DR1B2 modules.
Isolation method		Photocoupler	Photocoupler	○	
Rated load voltage/current		24VDC 2A (resistance load)/ point 240VAC 2A (COS φ =1)/point 8A/common	30VDC 2A/point 240VAC 2A/point 4A/common	○	
Minimum switching load		5VDC 1mA	5VDC 2mA	△	Confirm the specifications of the load to be used.
Maximum switching voltage		250VAC, 110VDC	250VAC, 30VDC	△	
Response time	OFF → ON	10ms or less	10ms or less	○	
	ON → OFF	12ms or less	10ms or less	○	
Mechanical life		20 million times or more	—	—	
Electrical life		Rated switching voltage/ current load 100,000 times or more 200VAC 1.5A, 240VAC 1A (COS φ =0.7) 100,000 times or more 200VAC 1A, 240VAC 0.5A (COS φ =0.35) 100,000 times or more 24VDC 1A, 100VDC 0.1A (L/R=7ms) 100,000 times or more	200VAC 1.5A, 240VAC 1A (COS φ =0.7) 100,000 times or more 200VAC 1A, 240VAC 0.1A (COS φ =0.35) 100,000 times or more 24VDC 1A, 100VDC 0.1A (L/R=7ms) 100,000 times or more	○	
Maximum switching frequency		3,600 times/hr	—	—	
External power supply	Voltage	24VDC ± 10% Ripple voltage 4Vp-p or less	20.4 to 28.8VDC (ripple ratio within 5%)	○	
	Current	45mA (24VDC TYP. all points ON)	Included in I/O module power supply	—	
Surge suppressor		None	None	○	
Common terminal arrangement		8 points per common (2-wire type terminal block)	4 points per common (2-wire type terminal block)	○	

○ : Compatible, △ : Partially changed, × : Not compatible

Specifications		AJ55TB32-16DR	CL1XY8-DR1B2	Compati- bility	Precautions for replacement
Number of occupied stations		2 stations occupied	In 4-, 8- and 16-point mode: 1 station occupied	△	Set to the 4-point mode.
Operation indicator		ON indication (LED)	ON indication (LED)	○	
External wiring method		40-point terminal block (M3 screw) Transmission circuit included	16-point terminal block (M3 screw) Dedicated connector for each of transmission and module power supply	×	Wiring must be changed. A dedicated connector is used to make wiring connection for transmission and module power supply.
Applicable wire size		0.75 to 2mm ²	0.3 to 1.25mm ²	×	
Applicable crimping terminal		1.25-3, 1.25-YS3A, 2-S3, 2-YS3A V1.25-3, V1.25-YS3A, V2-S3, V2-YS3A	RAV1.25-3, V1.25-3, 1.25-3, TG1-3	×	
I/O module power supply	Voltage	15.6 to 27.6VDC (peak voltage 27.6VDC)	20.4 to 28.8VDC (ripple ratio within 5%)	△	Operating voltage range is different.
	Current	70mA	70mA	△	Using two CL1XY8-DR1B2 modules requires higher current consumption, so the current capacity must be reviewed.
External dimensions		50(H) × 177(W) × 66(D)mm	53.5(H) × 80(W) × 40(D) mm	×	The external dimensions is different. Use caution on the mounting.
Weight		0.4kg	0.11kg	○	

*1: Confirm the specifications of the sensors or switches to be connected to the CL1XY8-DR1B2.

(4) Comparisons between AJ55TB32-4DT and CL1XY4-DT1B2

○ : Compatible, △ : Partially changed, × : Not compatible

Input specifications		AJ55TB32-4DT	CL1XY4-DT1B2	Compati- bility	Precautions for replacement
Number of input points		2 points	2 points	○	
Isolation method		Photocoupler	Photocoupler	○	
Rated input voltage		24VDC	24VDC	○	
Rated input current		Approx. 7mA	Approx. 4mA	△	Rated input current is smaller.*1
Operating voltage range		19.2 to 26.4VDC (ripple ratio within 5%)	20.4 to 28.8VDC (ripple ratio within 5%)	△	Operating voltage range is different.
Maximum simultaneous on input point		100%	100%	○	
ON voltage/ON current		14VDC or more/3.5mA or more	19VDC or more/3.0mA or more	△	Use caution on the voltage level.
OFF voltage/OFF current		6VDC or less/1.7mA or less	11VDC or less/1.7mA or less	△	Use caution on the voltage level.
Input resistance		Approx. 3.3k Ω	Approx. 5.6k Ω	△	Input resistance is greater.*1
Response time	OFF → ON	10ms or less	1.5ms or less	○	
	ON → OFF	10ms or less	1.5ms or less	○	
Common terminal arrangement		2 points per common (3-wire type terminal block)	2 points per common (2-wire type terminal block)	△	To connect a 3-wire type sensor, etc., an external common terminal block is required.
Output specifications		AJ55TB32-4DT	CL1XY4-DT1B2	Compati- bility	Precautions for replacement
Number of output points		2 points	2 points	○	
Isolation method		Photocoupler	Photocoupler	○	
Rated load voltage		24 VDC	12/24VDC	○	
Operating load voltage range		19.2 to 26.4VDC (peak voltage 26.4VDC)	10.2 to 28.8VDC (ripple ratio within 5%)	○	
Maximum load current		0.5A/point, 1.0A/common	0.1A/point, 0.2A/common	△	The maximum load current per point is smaller. Use caution on selecting the load to use.
Maximum inrush current		4.0A 10ms or less	0.4A, 10ms or less	△	The inrush current value differs. Use caution on selecting the load to use.
Leakage current at OFF		0.1mA or less	0.1mA or less	○	
Maximum voltage drop at ON		0.9VDC or less (TYP.) 0.5A 1.5VDC or less (MAX.) 0.5A	0.3VDC or less TYP.) 0.1A 0.6VDC or less (MAX.) 0.1A	○	
Response time	OFF → ON	2.0ms or less	1.0ms or less	○	
	ON → OFF	2.0ms or less (resistance load)	1.0ms or less (resistance load)	○	
External power supply	Voltage	19.2 to 26.4VDC	–	–	External supply power is not required.
	Current	15mA (24VDC TYP. per 1 common)	–	–	External supply power is not required.
Surge suppressor		Zener diode	Zener diode	○	
Common terminal arrangement		2 points per common (2-wire type terminal block)	2 points per common (2-wire type terminal block)	○	

○ : Compatible, △ : Partially changed, × : Not compatible

Specifications		AJ55TB32-4DT	CL1XY4-DT1B2	Compati- bility	Precautions for replacement
Number of occupied stations		1 stations occupied	In 4-, 8- and 16-point mode: 1 station occupied	○	Set to the 4-point mode.
Operation indicator		ON indication (LED)	ON indication (LED)	○	
External wiring method		16-point terminal block (M3 screw) Transmission circuit included	16-point terminal block (M3 screw) Dedicated connector for each of transmission and module power supply	×	Wiring must be changed. A dedicated connector is used to make wiring connection for transmission and module power supply.
Applicable wire size		0.75 to 2mm ²	0.3 to 1.25mm ²	×	
Applicable crimping terminal		1.25-3, 1.25-YS3A, 2-S3, 2-YS3A V1.25-3, V1.25-YS3A, V2-S3, V2-YS3A	RAV1.25-3, V1.25-3, 1.25-3, TG1-3	×	
I/O module power supply	Voltage	15.6 to 27.6VDC (peak voltage 27.6VDC)	20.4 to 28.8VDC (ripple ratio within 5%)	△	Operating voltage range is different.
	Current	40mA	55mA	△	The current consumption has increased, so the current capacity must be reviewed.
External dimensions		50(H) × 82(W) × 66(D)mm	53.5(H) × 80(W) × 40(D) mm	×	The external form is different. Use caution on the mounting dimensions.
Weight		0.2kg	0.1kg	○	

*1: Confirm the specifications of the sensors or switches to be connected to the CL1XY4-DT1B2.

(5) Comparisons between AJ55TB32-8DT and CL1XY8-DT1B2

○ : Compatible, △ : Partially changed, × : Not compatible

Input specifications		AJ55TB32-8DT	CL1XY8-DT1B2	Compati- bility	Precautions for replacement
Number of input points		4 points	4 points	○	
Isolation method		Photocoupler	Photocoupler	○	
Rated input voltage		24VDC	24VDC	○	
Rated input current		Approx. 7mA	Approx. 4mA	△	Rated input current is smaller.*1
Operating voltage range		19.2 to 26.4VDC (ripple ratio within 5%)	20.4 to 28.8VDC (ripple ratio within 5%)	△	Operating voltage range is different.
Maximum simultaneous on input point		100%	100%	○	
ON voltage/ON current		14VDC or more/3.5mA or more	19VDC or more/3.0mA or more	△	Use caution on the voltage level.
OFF voltage/OFF current		6VDC or less/1.7mA or less	11VDC or less/1.7mA or less	△	Use caution on the voltage level.
Input resistance		Approx. 3.3k Ω	Approx. 5.6k Ω	△	Input resistance is greater.*1
Response time	OFF → ON	10ms or less	1.5ms or less	○	
	ON → OFF	10ms or less	1.5ms or less	○	
Common terminal arrangement		4 points per common (3-wire type terminal block)	4 points per common (2-wire type terminal block)	△	To connect a 3-wire type sensor, etc., an external common terminal block is required.
Output specifications		AJ55TB32-8DT	CL1XY8-DT1B2	Compati- bility	Precautions for replacement
Number of output points		4 points	4 points	○	
Isolation method		Photocoupler	Photocoupler	○	
Rated load voltage		24 VDC	12/24VDC	○	
Operating load voltage range		19.2 to 26.4VDC (peak voltage 26.4VDC)	10.2 to 28.8VDC (ripple ratio within 5%)	○	
Maximum load current		0.5A/1 point, 2.0A/1 common	0.1A/1 point, 0.4A/1 common	△	The maximum load current per point is smaller. Use caution on selecting the load to use.
Maximum inrush current		4.0A 10ms or less	0.4A, 10ms or less	△	The inrush current value differs. Use caution on selecting the load to use.
Leakage current at OFF		0.1mA or less	0.1mA or less	○	
Maximum voltage drop at ON		0.9VDC or less (TYP.) 0.5A 1.5VDC or less (MAX.) 0.5A	0.3VDC or less (TYP.) 0.1A 0.6VDC or less (MAX.) 0.1A	○	
Response time	OFF → ON	2.0ms or less	1.0ms or less	○	
	ON → OFF	2.0ms or less (resistance load)	1.0ms or less (resistance load)	○	
External power supply	Voltage	19.2 to 26.4VDC	–	–	External supply power is not required.
	Current	30mA (24VDC TYP. per 1 common)	–	–	External supply power is not required.
Surge suppressor		Zener diode	Zener diode	○	
Common terminal arrangement		4 points per common (2-wire type terminal block)	4 points per common (2-wire type terminal block)	○	

○ : Compatible, △ : Partially changed, × : Not compatible

Specifications		AJ55TB32-8DT	CL1XY8-DT1B2	Compati- bility	Precautions for replacement
Number of occupied stations		1 stations occupied	In 4-, 8- and 16-point mode: 1 station occupied	○	Set to the 4-point mode.
Operation indicator		ON indication (LED)	ON indication (LED)	○	
External wiring method		24-point terminal block (M3 screw) Transmission circuit included	16-point terminal block (M3 screw) Dedicated connector for each of transmission and module power supply	×	Wiring must be changed. A dedicated connector is used to make wiring connection for transmission and module power supply.
Applicable wire size		0.75 to 2mm ²	0.3 to 1.25mm ²	×	
Applicable crimping terminal		1.25-3, 1.25-YS3A, 2-S3, 2-YS3A V1.25-3, V1.25-YS3A, V2-S3, V2-YS3A	RAV1.25-3, V1.25-3, 1.25-3, TG1-3	×	
I/O module power supply	Voltage	15.6 to 27.6VDC (peak voltage 27.6VDC)	20.4 to 28.8VDC (ripple ratio within 5%)	△	Operating voltage range is different.
	Current	50mA	65mA	△	The current consumption has increased, so the current capacity must be reviewed.
External dimensions		50(H) × 114(W) × 66(D)mm	53.5(H) × 80(W) × 40(D) mm	×	The external dimensions is different. Use caution on the mounting.
Weight		0.3kg	0.1kg	○	

*1: Confirm the specifications of the sensors or switches to be connected to the CL1XY8-DT1B2.

(6) Comparisons between AJ55TB32-16DT and CL1XY8-DT1B2

○ : Compatible, △ : Partially changed, × : Not compatible

Input specifications		AJ55TB32-16DT	CL1XY8-DT1B2	Compati- bility	Precautions for replacement
Number of input points		8 points	4 points	×	When five or more points are used, use two CL1XY8-DT1B2 modules.
Isolation method		Photocoupler	Photocoupler	○	
Rated input voltage		24VDC	24VDC	○	
Rated input current		Approx. 7mA	Approx. 4mA	△	Rated input current is smaller.*1
Operating voltage range		19.2 to 26.4VDC (ripple ratio within 5%)	20.4 to 28.8VDC (ripple ratio within 5%)	△	Operating voltage range is different.
Maximum simultaneous on input point		100%	100%	○	
ON voltage/ON current		14VDC or more/3.5mA or more	19VDC or more/3.0mA or more	△	Use caution on the voltage level.
OFF voltage/OFF current		6VDC or less/1.7mA or less	11VDC or less/1.7mA or less	△	Use caution on the voltage level.
Input resistance		Approx. 3.3k Ω	Approx. 5.6k Ω	△	Input resistance is greater.*1
Response time	OFF → ON	10ms or less	1.5ms or less	○	
	ON → OFF	10ms or less	1.5ms or less	○	
Common terminal arrangement		8 points per common (3-wire type terminal block)	4 points per common (2-wire type terminal block)	△	To connect a 3-wire type sensor, etc., an external common terminal block is required.
Output specifications		AJ55TB32-16DT	CL1XY8-DT1B2	Compati- bility	Precautions for replacement
Number of output points		8 points	4 points	×	When five or more points are used, use two CL1XY8-DT1B2 modules.
Isolation method		Photocoupler	Photocoupler	○	
Rated load voltage		24 VDC	12/24VDC	○	
Operating load voltage range		19.2 to 26.4VDC (peak voltage 26.4VDC)	10.2 to 28.8VDC (ripple ratio within 5%)	○	
Maximum load current		0.5A/point, 4.0A/common	0.1A/point, 0.4A/common	△	The maximum load current per point is smaller. Use caution on selecting the load to use.
Maximum inrush current		4.0A 10ms or less	0.4A, 10ms or less	△	The inrush current value differs. Use caution on selecting the load to use.
Leakage current at OFF		0.1mA or less	0.1mA or less	○	
Maximum voltage drop at ON		0.9VDC or less (TYP.) 0.5A 1.5VDC or less (MAX.) 0.5A	0.3VDC or less (TYP.) 0.1A 0.6VDC or less (MAX.) 0.1A	○	
Response time	OFF → ON	2.0ms or less	1.0ms or less	○	
	ON → OFF	2.0ms or less (resistance load)	1.0ms or less (resistance load)	○	
External power supply	Voltage	19.2 to 26.4VDC	—	—	External supply power is not required.
	Current	60mA (24VDC TYP. per 1 common)	—	—	External supply power is not required.
Surge suppressor		Zener diode	Zener diode	○	
Common terminal arrangement		8 points per common (2-wire type terminal block)	4 points per common (2-wire type terminal block)	○	

○ : Compatible, △ : Partially changed, × : Not compatible

Specifications		AJ55TB32-16DT	CL1XY8-DT1B2	Compati- bility	Precautions for replacement
Number of occupied stations		2 stations occupied	In 4-, 8- and 16-point mode: 1 station occupied	△	Set to the 4-point mode.
Operation indicator		ON indication (LED)	ON indication (LED)	○	
External wiring method		40-point terminal block (M3 screw) Transmission circuit included	16-point terminal block (M3 screw) Dedicated connector for each of transmission and module power supply	×	Wiring must be changed. A dedicated connector is used to make wiring connection for transmission and module power supply.
Applicable wire size		0.75 to 2mm ²	0.3 to 1.25mm ²	×	
Applicable crimping terminal		1.25-3, 1.25-YS3A, 2-S3, 2-YS3A V1.25-3, V1.25-YS3A, V2-S3, V2-YS3A	RAV1.25-3, V1.25-3, 1.25-3, TG1-3	×	
I/O module power supply	Voltage	15.6 to 27.6VDC (peak voltage 27.6VDC)	20.4 to 28.8VDC (ripple ratio within 5%)	△	Operating voltage range is different.
	Current	70mA	65mA	△	Using two CL1XY8-DT1B2 modules requires higher current consumption, so the current capacity must be reviewed.
External dimensions		50(H) × 177(W) × 66(D)mm	53.5(H) × 80(W) × 40(D) mm	×	The external dimensions is different. Use caution on the mounting.
Weight		0.4kg	0.1kg	○	

*1: Confirm the specifications of the sensors or switches to be connected to the CL1XY8-DT1B2.

5.3 Precautions for Replacement of the I/O Module

(1) Wiring

(a) Wire gauge and size of crimping terminals

As CC-Link/LT supports compact modules and terminal blocks, the wire gauge and size of the crimping terminals that can be used on terminal blocks differ from those that can be used on the MELSEC-I/OLINK.

For this reason, when replacing with CC-Link/LT, use wire gages and crimping terminals that match the CC-Link/LT specifications.

(2) Transmission cable

(a) Arranging for transmission cable connectors

Transmission cable connectors are not packaged with CC-Link/LT products. The necessary number of transmission cable connectors (CL9-CN□-□□) must be arranged for separately.

(3) Precautions for input module

(a) Change in rated input current specifications

CC-Link/LT supports a smaller rated input current than MELSEC-I/OLINK does. Confirm the specifications of the sensors or switches to be connected.

(4) Precautions for output module

(a) Change in output current values specifications

Some CC-Link/LT output modules support a smaller output current than MELSEC-I/OLINK output modules do. Before using an output module having a smaller output current on CC-Link/LT, confirm the specifications on the load side.

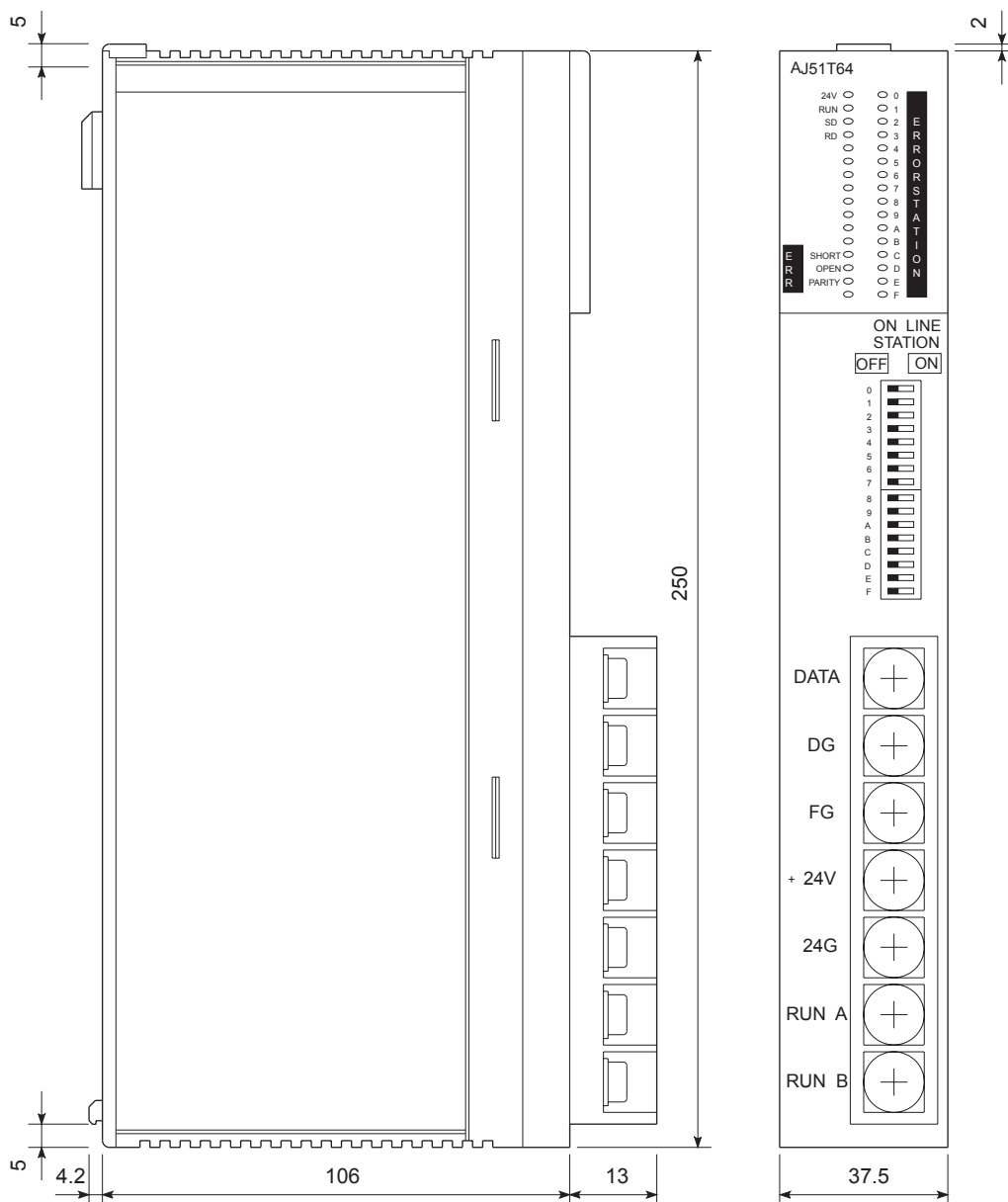
(b) Change in common maximum load current specifications

Sometimes the maximum load current per common differs between CC-Link/LT and MELSEC-I/OLINK. Check the maximum load current per common before use.

6 EXTERNAL DIMENSIONS

6.1 MELSEC-I/OLINK External Dimensions

(1) AJ51T64



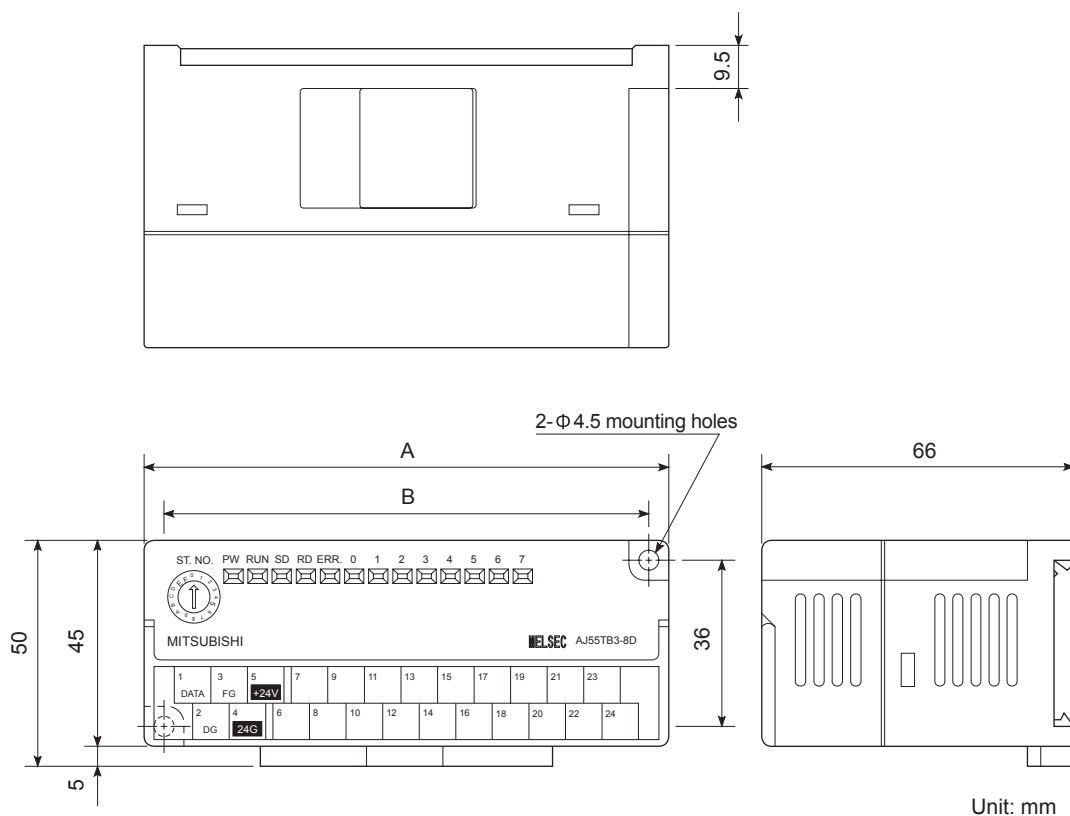
Unit: mm

(2) A1SJ51T64



Unit: mm

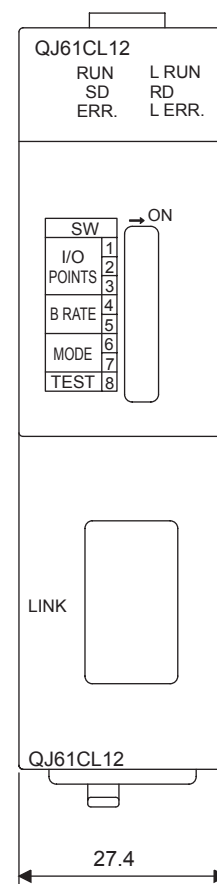
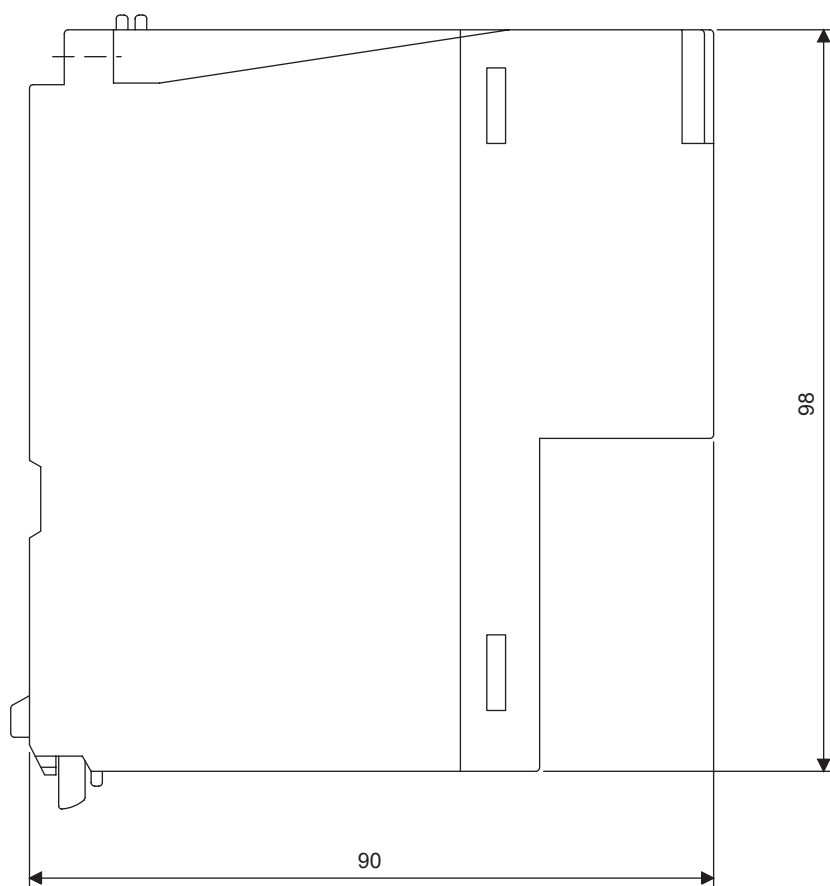
(3) Remote I/O module



Model name	Changed dimensions	
	A	B
AJ55TB□□- 4 □□	82	73
AJ55TB□□- 8 □□	114	105
AJ55TB□□-16 □□	177	168

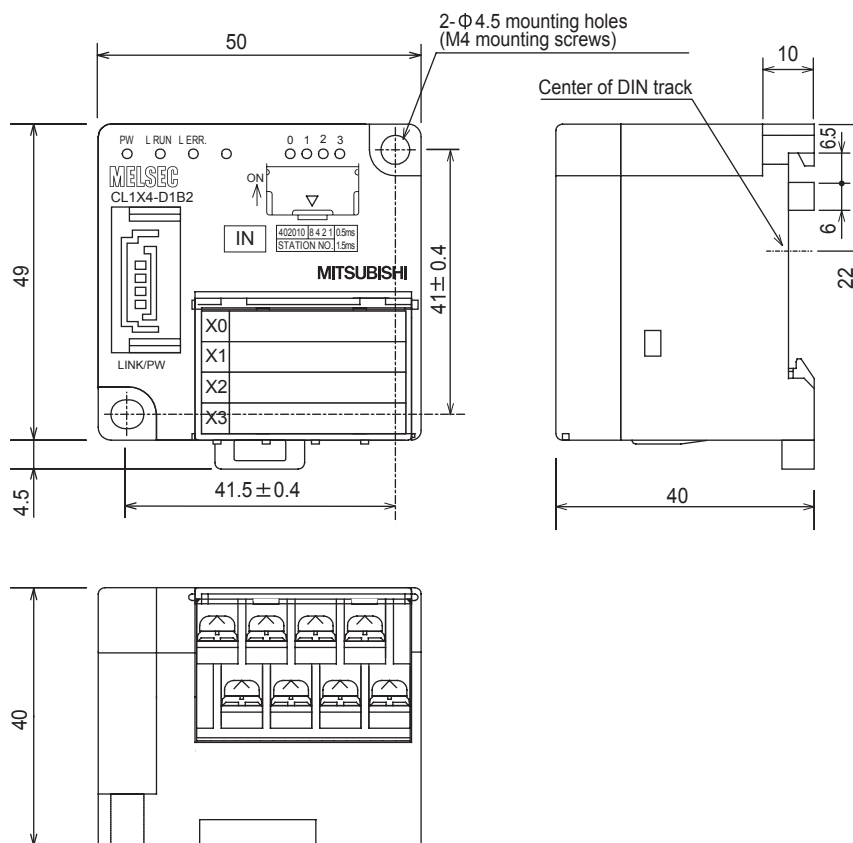
6.2 CC-Link/LT External Dimensions

(1) QJ61CL12



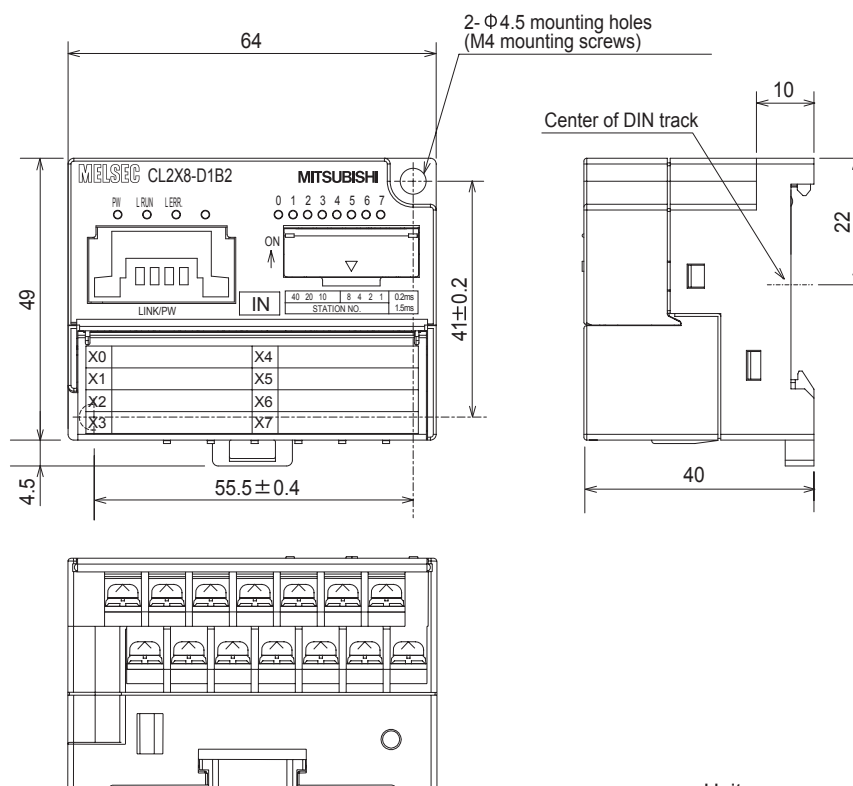
Unit: mm

(2) CL1X4-D1B2



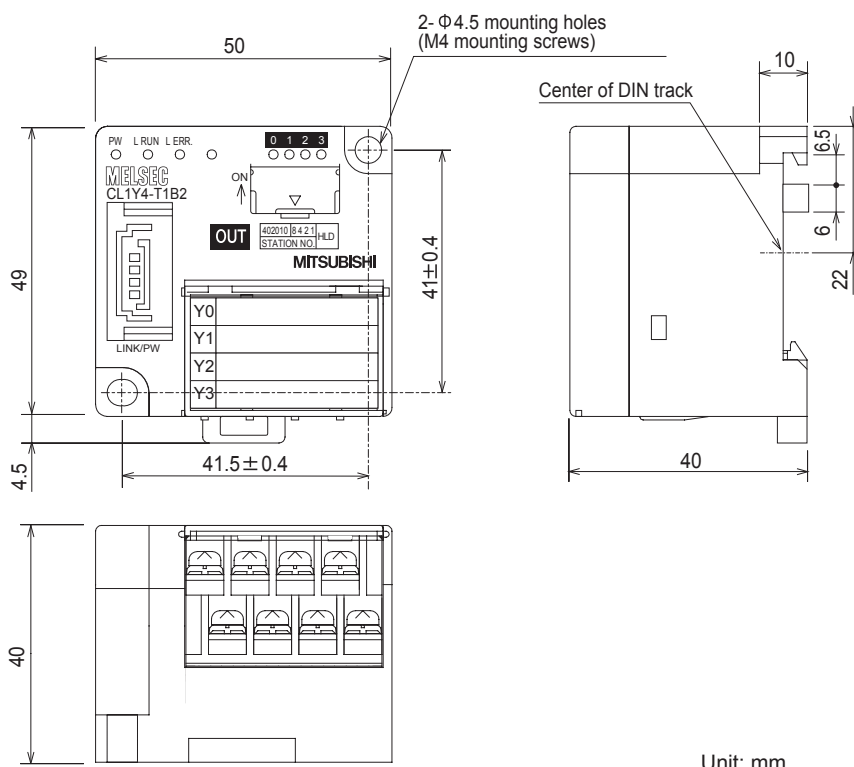
Unit: mm

(3) CL2X8-D1B2

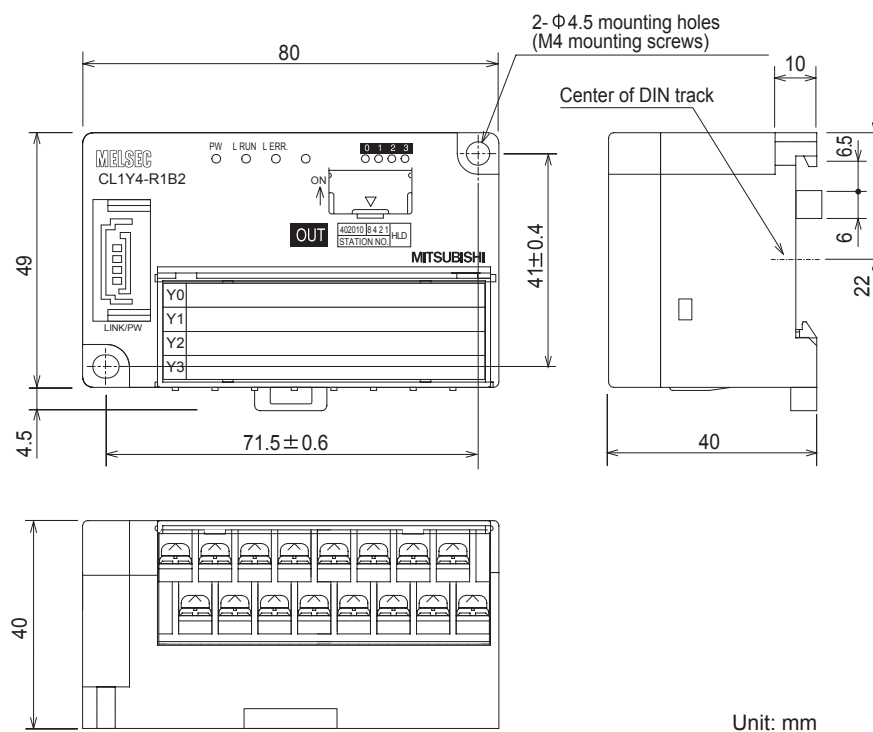


Unit: mm

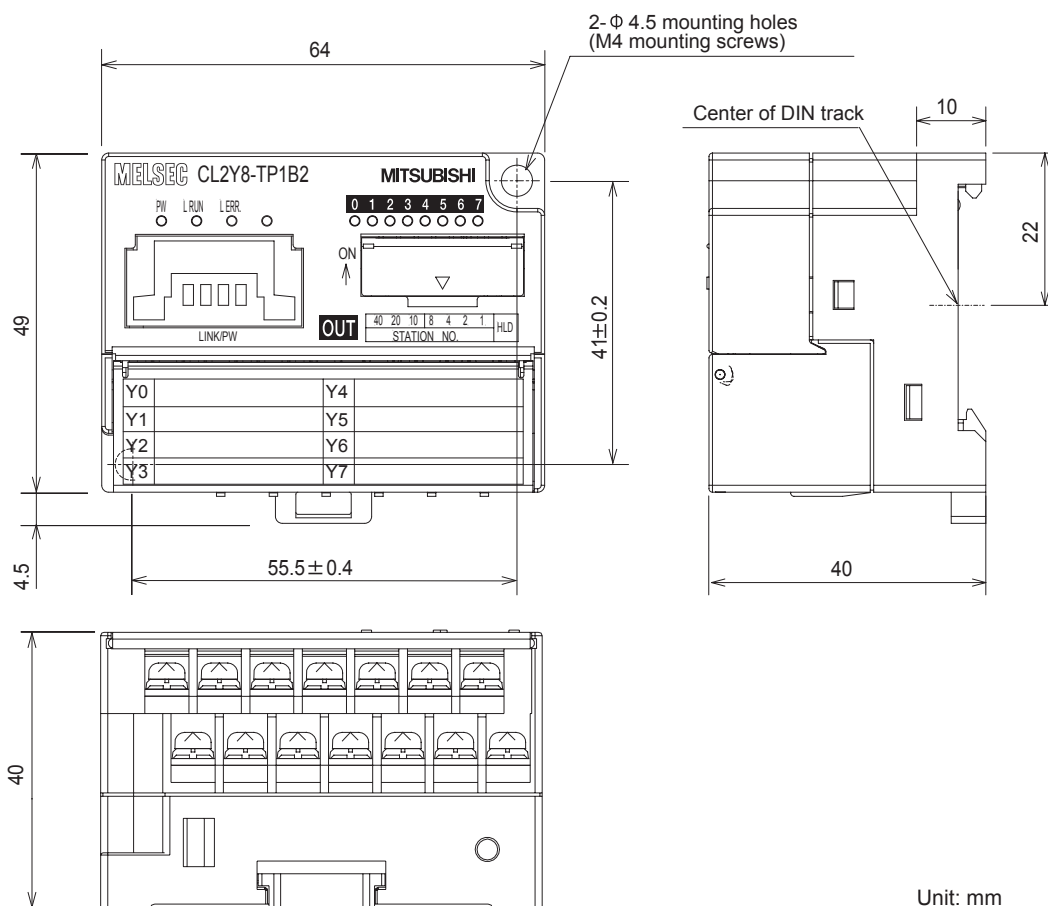
(4) CL1Y4-T1B2



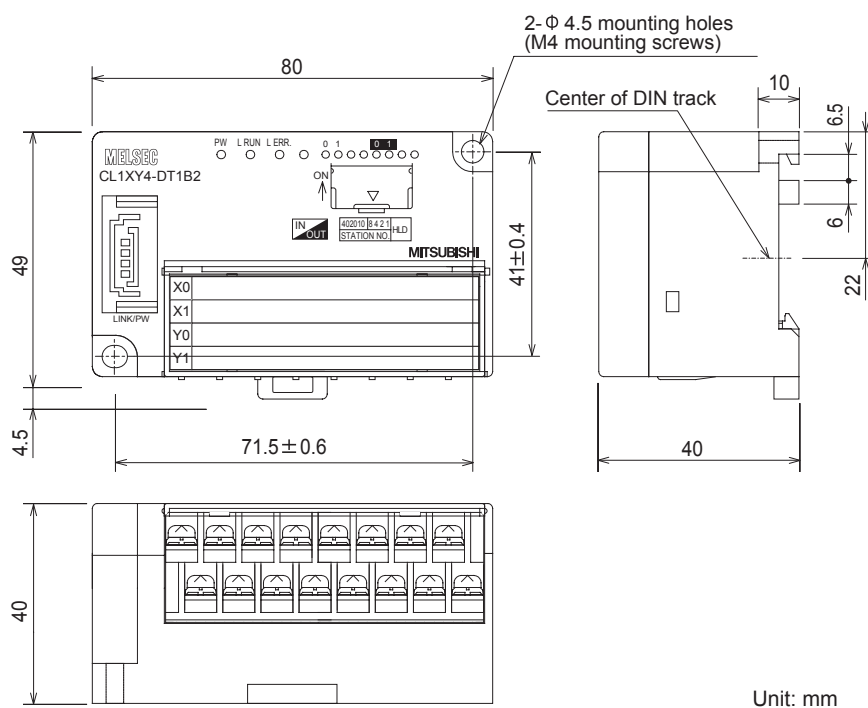
(5) CL1Y4-R1B2



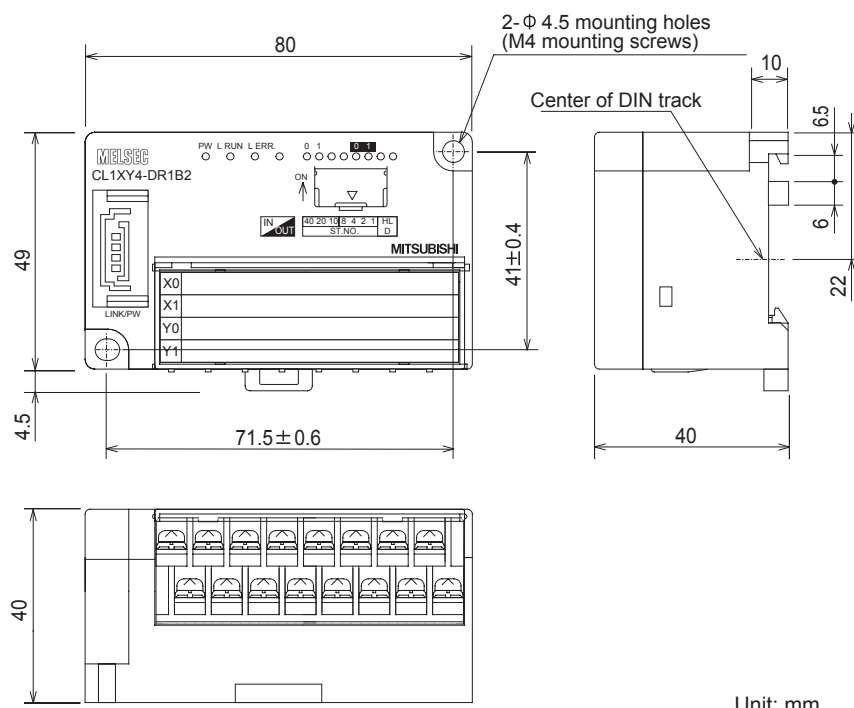
(6) CL2Y8-TP1B2



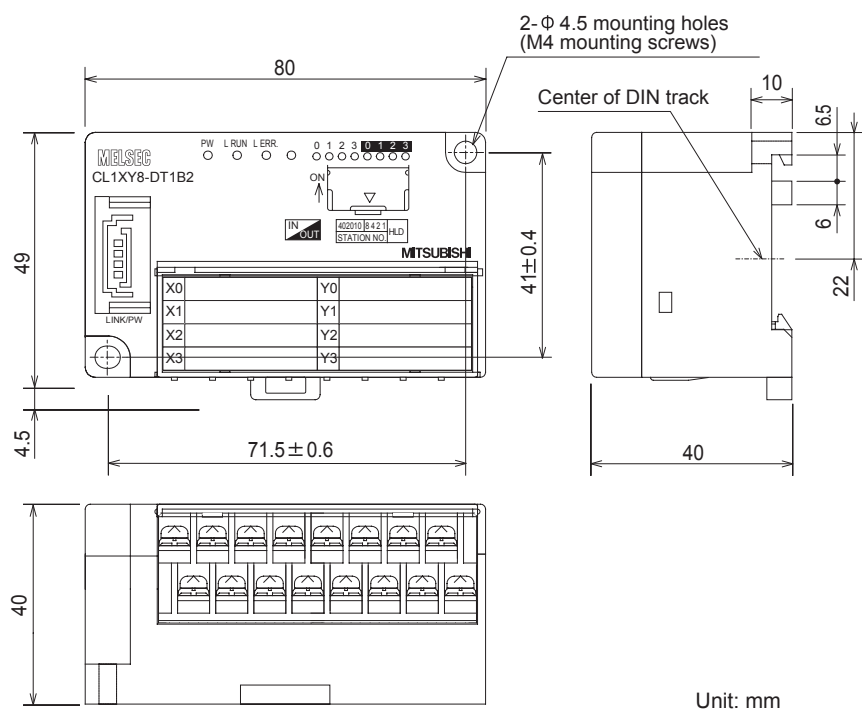
(7) CL1XY4-DT1B2



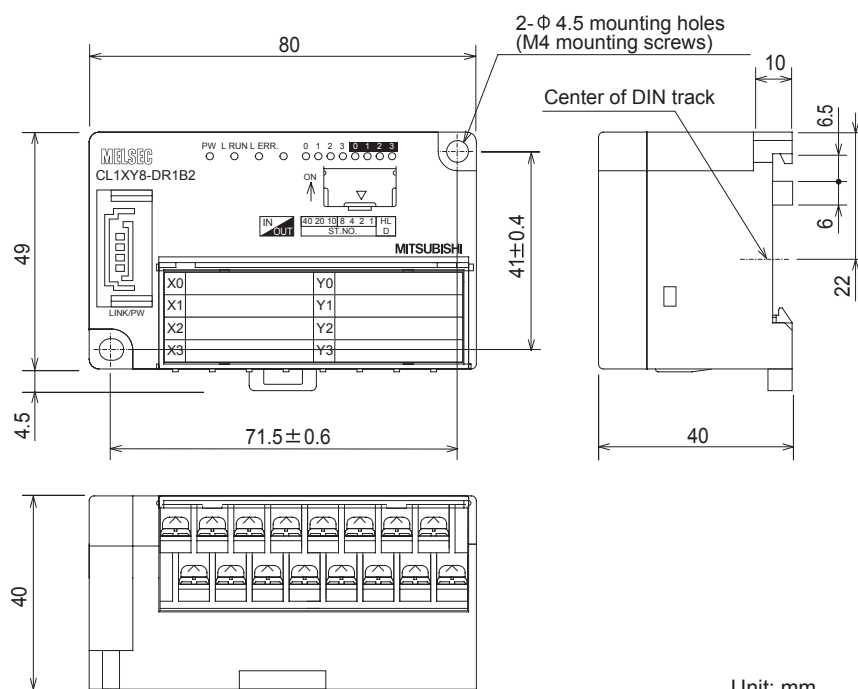
(8) CL1XY4-DR1B2



(9) CL1XY8-DT1B2



(10) CL1XY8-DR1B2



Unit: mm

APPENDICES

Appendix 1 Related Manuals

Appendix 1.1 Replacement Handbooks

No.	Manual Name	Manual No.	Model Name code
1	Transition from MELSEC-A/QnA (Large Type) Series to Q Series Handbook (Fundamentals)	L-08043ENG	–
2	Transition from MELSEC-A/QnA (Large Type) Series to Q Series Handbook (Intelligent Function Modules)	L-08046ENG	–
3	Transition from MELSEC-A/QnA (Large Type) Series to Q Series Handbook (Network Modules)	L-08048ENG	–
4	Transition from MELSEC-A/QnA (Large Type) Series to Q Series Handbook (Communications)	L-08050ENG	–
5	Transition from MELSEC-A0J2H Series to Q Series Handbook	L-08060ENG	–
6	Transition from MELSECNET/MINI-S3,A2C(I/O) to CC-Link Handbook	L-08061ENG	–
7	Transition from MELSEC-I/OLINK to CC-Link/LT Handbook	L-08062ENG	–
8	Transition from MELSEC-A/QnA Large Type Series to AnS/Q2AS Small Type Series Handbook	L-08064ENG	–
9	Transition of CPUs in MELSEC Redundant System Handbook (Transition from Q4ARCPU to QnPRHCPU)	L-08117ENG	–

Appendix 1.2 MELSEC-I/OLINK

No.	Manual Name	Manual No.	Model Name Code
1	MELSEC-I/O Link Remote I/O System Master Module type AJ51T64/A1SJ51T64 User's Manual	IB-66574	13J748

Appendix 1.3 CC-Link/LT

No.	Manual Name	Manual No.	Model Name Code
1	CC-Link Compatible Product Catalog	L-08018E	–
2	CC-Link/LT Compatible Product Catalog	L-08026E	–
3	CC-Link/LT Master Module User's Manual	SH-080351E	13JR62
4	CL1X4-D1B2 USER'S MANUAL	JY997D04101	–
5	CL2X8-D1B2 CC-Link/LT Remote I/O Module User's Manual	IB-0800233	13JP03
6	CL1Y4-R1B2 USER'S MANUAL	JY997D04301	–
7	CL1Y4-T1B2 USER'S MANUAL	JY997D04201	–
8	CL2Y8-TP1B2 CC-Link/LT Remote I/O Module User's Manual	IB-0800234	13JP04
9	CL1XY4-DR1B2 USER'S MANUAL	JY997D05701	–
10	CL1XY8-DR1B2 USER'S MANUAL	JY997D04501	–
11	CL1XY4-DT1B2 USER'S MANUAL	JY997D05601	–
12	CL1XY8-DT1B2 USER'S MANUAL	JY997D04401	–

[illegible]

WARRANTY

Please confirm the following product warranty details before using this product.

1. Gratis Warranty Term and Gratis Warranty Range

If any faults or defects (hereinafter "Failure") found to be the responsibility of Mitsubishi occurs during use of the product within the gratis warranty term, the product shall be repaired at no cost via the sales representative or Mitsubishi Service Company. However, if repairs are required onsite at domestic or overseas location, expenses to send an engineer will be solely at the customer's discretion. Mitsubishi shall not be held responsible for any re-commissioning, maintenance, or testing on-site that involves replacement of the failed module.

[Gratis Warranty Term]

The gratis warranty term of the product shall be for one year after the date of purchase or delivery to a designated place.

Note that after manufacture and shipment from Mitsubishi, the maximum distribution period shall be six (6) months, and the longest gratis warranty term after manufacturing shall be eighteen (18) months. The gratis warranty term of repair parts shall not exceed the gratis warranty term before repairs.

[Gratis Warranty Range]

- (1) The range shall be limited to normal use within the usage state, usage methods and usage environment, etc., which follow the conditions and precautions, etc., given in the instruction manual, user's manual and caution labels on the product.
- (2) Even within the gratis warranty term, repairs shall be charged for in the following cases.
 1. Failure occurring from inappropriate storage or handling, carelessness or negligence by the user. Failure caused by the user's hardware or software design.
 2. Failure caused by unapproved modifications, etc., to the product by the user.
 3. When the Mitsubishi product is assembled into a user's device, Failure that could have been avoided if functions or structures, judged as necessary in the legal safety measures the user's device is subject to or as necessary by industry standards, had been provided.
 4. Failure that could have been avoided if consumable parts (battery, backlight, fuse, etc.) designated in the instruction manual had been correctly serviced or replaced.
 5. Failure caused by external irresistible forces such as fires or abnormal voltages, and Failure caused by force majeure such as earthquakes, lightning, wind and water damage.
 6. Failure caused by reasons unpredictable by scientific technology standards at time of shipment from Mitsubishi.
 7. Any other failure found not to be the responsibility of Mitsubishi or that admitted not to be so by the user.

2. Onerous repair term after discontinuation of production

- (1) Mitsubishi shall accept onerous product repairs for seven (7) years after production of the product is discontinued. Discontinuation of production shall be notified with Mitsubishi Technical Bulletins, etc.
- (2) Product supply (including repair parts) is not available after production is discontinued.

3. Overseas service

Overseas, repairs shall be accepted by Mitsubishi's local overseas FA Center. Note that the repair conditions at each FA Center may differ.

4. Exclusion of loss in opportunity and secondary loss from warranty liability

Regardless of the gratis warranty term, Mitsubishi shall not be liable for compensation of damages caused by any cause found not to be the responsibility of Mitsubishi, loss in opportunity, lost profits incurred to the user by Failures of Mitsubishi products, special damages and secondary damages whether foreseeable or not, compensation for accidents, and compensation for damages to products other than Mitsubishi products, replacement by the user, maintenance of on-site equipment, start-up test run and other tasks.

5. Changes in product specifications

The specifications given in the catalogs, manuals or technical documents are subject to change without prior notice.

6. Product application

- (1) In using the Mitsubishi MELSEC programmable controller, the usage conditions shall be that the application will not lead to a major accident even if any problem or fault should occur in the programmable controller device, and that backup and fail-safe functions are systematically provided outside of the device for any problem or fault.
- (2) The Mitsubishi programmable controller has been designed and manufactured for applications in general industries, etc. Thus, applications in which the public could be affected such as in nuclear power plants and other power plants operated by respective power companies, and applications in which a special quality assurance system is required, such as for Railway companies or Public service purposes shall be excluded from the programmable controller applications.

In addition, applications in which human life or property that could be greatly affected, such as in aircraft, medical applications, incineration and fuel devices, manned transportation, equipment for recreation and amusement, and safety devices, shall also be excluded from the programmable controller range of applications.

However, in certain cases, some applications may be possible, providing the user consults their local Mitsubishi representative outlining the special requirements of the project, and providing that all parties concerned agree to the special circumstances, solely at the users discretion.

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Mitsubishi Programmable Controller



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